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By-Parnicky, Joseph J., Ed.; Kahn, Harris, Ed.

EVALUATING AND DEVELOPING VOCATIONAL POTENTIAL OF INSTITUTIONALIZED RETARDED ADOLESCENTS.

Edward R. Johnstone Training and Research Center, Bordentown, N.J.

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Descriptors-*EXCEPTIONAL CHILD RESEARCH, INSTITUTIONAL RESEARCH, INSTITUTIONAL SCHOOLS, JOB TRAINING, *MENTALLY HANDICAPPED, NONVERBAL TESTS, OCCUPATIONAL TESTS, TEST CONSTRUCTION, *TESTS, *VOCATIONAL ADJUSTMENT, *VOCATIONAL EDUCATION, VOCATIONAL TRAINING CENTERS, WORK EXPERIENCE PROGRAMS, YOUNG ADULTS

Vocational performance predictors were tested with 437 mildly retarded students (mean age 18 1/2, mean IQ 64) in a five-stage training situation progressing from half to full day and from on to off campus. Findings demonstrated considerable overlap as well as some independence among measures. High degrees of reliability and intercorrelation were found within the group of psychological tests. More independence of items was found within the series of work sample measures. Rating scale items were highly intercorrelated, suggestive of a halo effect. All the evaluation techniques had some potency for prediction of adjustment and performance and were stronger at the end of each of the five stages. The program variations of a special work group and group counseling were moderately successful in favorably modifying behavior. A reading-free test was able to differentiate vocational interests. Job supervisors' ratings were best to predict performance in the half day on campus. No measure predicted performance for full-day work off campus with residence on campus. In 11 psychological tests, highest reliability was noted for motor skills tests; psychological test correlation with vocational performance varied. Factor analysis indicated the vocational interest test discriminated subjects' interests. Group counseling results were not conclusive. (DE)

Evaluating and Developing Vocational Potential of Institutionalized Retarded Adolescents

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EVALUATING AND DEVELOPING VOCATIONAL POTENTIAL OF INSTITUTIONALIZED RETARDED ADOLESCENTS

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Washington, D.C. 20036

Edited by

Joseph J. Parnicky, Ph.D.

Harris Kahn, Ph.D.

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Part I

PROLOGUE

Chapter 1: The Objective and Scope

Chapter 2: The Setting and Students

Chapter 1

THE OBJECTIVE AND SCOPE

Joseph J. Parnicky

THE PHILOSOPHY OF HABILITATION WHICH IS INFUSING AND REFASHIONING INSTITUTIONAL PROGRAMS FOR THE RETARDED HAS BEEN ONE OF THE MOST ENCOURAGING MOVEMENTS IN THE FIELD OF MENTAL RETARDATION. AMONG THE CHANGES HAS BEEN THE RECOGNITION THAT VOCATIONAL ACTIVITIES CAN BE MORE THAN BUSY WORK FOR THE RESIDENTS, AND THAT RETARDED INDIVIDUALS IN MANY CASES CAN PERFORM SUFFICIENTLY WELL TO ENTER THE COMPETITIVE LABOR MARKET. WHEREAS IN FORMER YEARS IT WAS THE EXCEPTION FOR A MENTALLY RETARDED YOUTH TO LEAVE AN INSTITUTION FOR SELF-SUFFICIENT, ECONOMIC ACTIVITY IN THE COMMUNITY, TODAY, THIS IS BECOMING MORE CHARACTERISTIC OF INSTITUTIONAL PROGRAMS, BOTH PUBLIC AND PRIVATE.

IT IS UNDERSTANDABLE THAT PRACTITIONERS INVOLVED IN SO YOUNG A PROGRAM DEVELOPMENT SHOULD HAVE MANY QUESTIONS REGARDING THE RESPONSIBILITIES THEY CARRY. THE KEY QUESTIONS APPEAR TO BE FOCUSED AROUND HOW TO EVALUATE THE POTENTIAL OF A RETARDED INDIVIDUAL AND HOW BEST TO REALIZE HIS FULLEST POTEN-

TIAL FOR COMMUNITY PLACEMENT AS A WAGE EARNER. ALTHOUGH THESE QUESTIONS DEMAND A STUDY, A SURVEY ACCOMPLISHED AS RECENTLY AS 1958 INDICATED THEY ARE BEING GIVEN A MODICUM OF RESEARCH ATTENTION IN THE INSTITUTIONAL FIELD. A QUESTIONNAIRE WAS SENT TO THE SUPERINTENDENTS OF 90 STATE INSTITUTIONS FOR THE MENTALLY RETARDED, AND FIVE PRIVATELY OWNED INSTITUTIONS HAVING A RESIDENT POPULATION OF 300 OR MORE. THE RESULTS, BASED ON REPLIES FROM HALF OF THE INSTITUTIONS CONTACTED, SHOWED THAT ONLY SIX STUDIES* OUT OF A TOTAL OF 214 RESEARCH PROJECTS IN PROGRESS WERE CONCERNED WITH VOCATIONAL SERVICES TO THE RETARDED (LIPMAN, BLACKMAN AND STEVENS, 1959).

THIS FIRMED THE CONVICTION THAT VALIDATION STUDIES OF TECHNIQUES FOR PREDICTING VOCATIONAL POTENTIAL WERE CRITICALLY NEEDED AND SPURRED THE INITIATION OF THE PROJECT HEREIN REPORTED. IN PLANNING THE STUDY, THE BASIC ORIENTATION WAS A LARGE SCALE APPROACH TO THE QUESTION, INCORPORATING EXPERIMENTAL, DEMONSTRATION AND RESEARCH FEATURES. THIS WAS BELIEVED NECESSARY IF THE BATTERY OF TECHNIQUES FOR PREDICTING VOCATIONAL SUCCESS WAS TO BE DEVELOPED AND TESTED OUT AGAINST A BACKGROUND OF COMPREHENSIVE VOCATIONAL REHABILITATION PROGRAM FOR MENTALLY RETARDED YOUTH, FROM PREVOCATIONAL EVALUATION TO POST-INSTITUTIONAL JOB ADJUSTMENT. IN ADDITION, THE RAPID GROWTH OF GROUP COUNSELING TECHNIQUES AS AN ADJUNCT OF VOCATIONAL PROGRAMS RAISED QUESTIONS ABOUT THE EXTENT OF THE CONTRIBUTION OF THIS PROCEDURE TO THE REHABILITATION PROCESS.

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*FOLLOW-UP INQUIRY IN 1963 REVEALED THAT RESULTS OF THESE STUDIES WERE NOT YET AVAILABLE FOR GENERAL DISTRIBUTION.

With this in mind, OVR Project No. 425, "A Demonstration-Research Project in the Rehabilitation of Mentally Retarded Youth in a State Institution", began operation in 1959 and continued for four years. The overall project objectives were twofold: a) to develop within the framework of a residential evaluation, training and placement program for educable mentally retarded youth, a predictive lattice which would permit the use of quantified evaluations, either independently or in combination, from any phase or phases of the program to predict performance at any subsequent phase; and b) to measure the effect of controlled variations within the evaluation and training phases of the program on the vocational adjustment of the experimental population and on the prognostic adequacy of the selected predictors.

More specifically the predictors to be investigated included psychological tests and such vocational instruments as prevocational evaluations and job supervisor ratings. Incorporated in the project was the study of the contribution of group counseling techniques to the progress of vocational trainees. The project also proposed developing a reading-free vocational interest test.

The project was designed to fit into the "phase framework" of the on-going vocational training program at Johnstone. As a preamble, it should be said that training at the Center is broadly conceived as including both academic and vocational instruction. Students under 16 years of age are generally in a full-time academic program. From this they move into half-time school and half-day vocational programs and thus begin the first of five stages in vocational rehabilitation which students making satisfactory progress

ARE AFFORDED. IT IS POSSIBLE FOR A STUDENT TO BE READY FOR A COMMUNITY JOB PLACEMENT IN THREE YEARS, BUT MANY REQUIRE LONGER. STUDENTS IN PHASES OF THIS EVALUATION, TRAINING AND PLACEMENT PROGRAM SERVED AS THE SAMPLE FOR THE STUDY.

THE FINDINGS OBTAINED AT EACH PHASE WERE EVALUATED FOR PREDICTIVE POTENTIAL BY CORRELATING THEM WITH ACHIEVEMENT SCORES OF SUBSEQUENT PHASES. IT SHOULD BE NOTED THAT SCORES ON SELECTED INSTRUMENTS WERE UTILIZED AS BOTH PREDICTOR AND CRITERION VARIABLES DEPENDING UPON WHETHER THE VARIABLES WERE BEING USED TO PREDICT ACHIEVEMENT IN SUBSEQUENT PHASES OR WERE BEING PREDICTED BY VARIABLES AT PRIOR PHASES. ALTHOUGH SOME OF THE FINDINGS ARE TENTATIVE, THE RESULTS ARE PRESENTED WITH THE PURPOSE OF PROVIDING:

-- A MORE VALID APPROACH TO THE SELECTION OF DESIRABLE CANDIDATES FOR VOCATIONAL TRAINING;

-- AN OBJECTIVE EVALUATION OF GROUP COUNSELING'S CONTRIBUTIONS TO THE VOCATIONAL PROGRESS OF MENTALLY RETARDED STUDENTS;

-- A FIRMER BASE FOR FUTURE RESEARCH INTO PROGRAMS OF HABILITATION OF MENTALLY RETARDED YOUTH.

Chapter 2

THE SETTING AND STUDENTS

Joseph J. Parnicky

Harris Kahn

WITH THE CREATION IN 1955 OF THE EDWARD R. JOHNSTONE TRAINING AND RESEARCH CENTER, THE NEWEST OF NEW JERSEY'S FIVE TRAINING SCHOOLS FOR THE MENTALLY RETARDED, THE STATE MOVED IN THE DIRECTION OF CONCENTRATING REHABILITATION SERVICES FOR EDUCABLE YOUTH IN A SINGLE REHABILITATION ORIENTED PROGRAM. THE STATUTE ESTABLISHING THE CENTER SPECIFICALLY DIRECTED "THE RAPID TREATMENT OF (MENTALLY RETARDED) PERSONS SO AS TO PERMIT THEIR RETURN TO THE COMMUNITY IN A CONSTRUCTIVE CAPACITY" (NJ STATUTES, 1955). IN ADDITION THE CENTER WAS GIVEN TWO OTHER MANDATES: TO CONDUCT RESEARCH IN THE FIELD OF MENTAL DEFICIENCY, AND TO TRAIN PERSONNEL IN THE CARE, TREATMENT AND TRAINING OF THE MENTALLY RETARDED.

IN LINE WITH THE REHABILITATION PURPOSE, THE STATE OF NEW JERSEY HAS ENDOWED THE INSTITUTION WITH STAFF AND FACILITIES KEYED TO THE PROPOSITION THAT MENTALLY RE-

TARDED YOUTH CAN BECOME SOCIALLY AND ECONOMICALLY INDEPENDENT. THE STAFF INCLUDES A HIGH PROPORTION OF PROFESSIONAL PERSONNEL REPRESENTING A WIDE RANGE OF DISCIPLINES. THE STAFF-STUDENT RATIO IS APPROXIMATELY 2:3. THE PROGRAM DEVELOPED COMBINES TRAINING AND CLINICAL SERVICES, ACKNOWLEDGING THAT PROGRESS OF THE STUDENT IS RELATED TO HIS TOTAL WELL BEING, AS WELL AS THE QUALITY AND RANGE OF TRAINING EXPERIENCES HE IS AFFORDED. MOREOVER, THE CENTER MAINTAINS CLOSE RELATIONS WITH THE STUDENT'S HOME AND OFFERS COUNSELING TO PARENTS, SINCE THE IMPORT OF THE LATTER'S INFLUENCE ON THE ADJUSTMENT OF THE CHILDREN IS WELL ESTABLISHED.

THE PROGRAM IS CONDUCTED WITH PARTICULAR EMPHASIS ON THE INDIVIDUAL STUDENT, HIS NEEDS AND POTENTIALS. STARTING WITH A COMPREHENSIVE EVALUATION OF THE STUDENT WITHIN THE FIRST MONTH AFTER ADMISSION, EACH ONE IS REVIEWED AT LEAST ONCE A YEAR BY A STAFF COMMITTEE TO DETERMINE IF EXPECTED RESULTS ARE BEING ACHIEVED.

PROGRESSION AND REWARDS ARE TWO KEY BYWORDS OF THE JOHNSTONE PROGRAM. STUDENTS ARE ORIENTED TO THE SERIES OF STEPS WHICH ARE AVAILABLE TO THEM IN PREPARING FOR RETURN TO COMMUNITY LIVING. WHAT IS STRESSED IS THAT THEIR OWN PROGRESS DETERMINES THE DURATION OF THEIR TRAINING AND THE TIME OF THEIR PLACEMENT. A SYSTEM OF CONCRETE AND FREQUENT REWARDS IS IN EFFECT TO HELP REINFORCE ACHIEVEMENT AND GOOD BEHAVIOR. WHEN STUDENTS MISBEHAVE, DISCIPLINE IS LARGELY IN THE FORM OF LOSS OF PRIVILEGES. IN ADDITION REPORT CARDS ARE ISSUED EACH SEMESTER AND HONOR CARDS ARE ISSUED MONTHLY TO HELP KEEP BOTH STUDENT AND PARENTS INFORMED ABOUT THE FORMER'S BEHAVIOR AND PROGRESS.

VOCATIONAL TRAINING BEGINS WHEN A STAFF REVIEW RECOMMENDS that a student be advanced from a full-time academic program to half-day school and half-day vocational training. This is Phase I, the first of five phases in the vocational program. It is primarily for evaluation. During this stage each student is given appropriate psychological and vocational tests as well as a thorough prevocational evaluation. In Phase II the student is assigned to a half-day training program on campus with monthly reports measuring his progress. Assignments usually extend for one semester with changes made to test the student's capabilities in a range of work areas. The objective of the training program is not to train him exclusively for one vocation. Rather it is to help a student appreciate what is expected of a worker in any setting and gain an acquaintance with a variety of tasks which may be available to him in the employment market.

When progress is sufficient, the student moves into full-time vocational training, or Phase III. By this time the student is about 18 years old. This phase of training helps accustom the student to a normal workday. This is the student's final opportunity to demonstrate whether or not he is ready to take an off-campus job. This phase of training may be as short as one semester; more typically it extends for two or three semesters. Those who show readiness are advanced to Phase IV in which they are scheduled for daywork in the community while remaining in residence at the Center. At this point, the student begins to earn money for the first time in the progression.

The final test of both the student and the rehabilitation program comes in Phase V when students who have demonstrated competence are placed on jobs and in residence in the community. At this point follow-up services are provided by workers from the Field Services Office of the State Division of Mental Retardation. Discharge of the student is considered at any time that he appears sufficiently able to manage on his own or to manage under protected conditions in the community. Review for discharge is mandatory every three years.

Should it become evident at any point in the training that the student could profit from training facilities within the community and the evaluations show that he does not require the residential program, referral is made to an appropriate resource. The services of the State Rehabilitation Commission are particularly considered for students who show capabilities for training available in community workshops. The "phase framework" of the vocational program at Johnstone is by no means a fixed track. Students can enter and leave at any point. The primary consideration is what will best serve the students' rehabilitation.

THE STUDENTS

Until the latter half of 1961, all students admitted to Johnstone Center had been transferred from other State facilities for the mentally retarded. Since that time students have been received, in addition, directly from the community. The same general criterion for admission has applied to all students: that they have apparent potential for favorable response to a training program intended to prepare them for return to the community as nearly socially and economically self-sufficient as is feasible.

Although intellectual level has been recognized as contributory to the general criterion, IQ limits have remained relatively flexible and the range has been from the level of moderate retardation to dull normal. The approximate lower age limit for admission has been 12 years, and the approximate upper limit has been 21 years. Directly proportional to the available dormitory space, the ratio of males to females has been approximately 2:1. Sensory and physical handicaps, either singly or in combinations have been a bar to admission only insofar as they prevent the student from participation in a relatively active program.*

Since 1956, when its program was started, the Johnstone Center has admitted 726 students. The number admitted per year has varied from 44 to 197, with peaks occuring during the third year when a building renovation program had been completed, and during the seventh year after direct admission procedure was instituted. The mean IQ of yearly admissions has not varied by more than four points from 63; the IQ's have ranged from 31 to 101. After the first year of operation, when the mean was 18.2 years, the mean chronological age of students in admission has stabilized at about 15 years, with the range extending from 10 years to 22 years.

The current enrollment is 380, with approximately 280 students in residence and the remainder on leave in community placements. Of the 346 no longer in the census, approximately one-half were discharged from supervision, and the remainder, many of whom were moderately retarded, have been returned or transferred to other institutions. Some of the latter have achieved salaried positions as institutional aides under recent revision of the State's institutional programs.

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*Two small sub-units, one for blind and one for communicatively handicapped students, have been established at the Center. Although students in these units are included in as many activities as possible, most of them are hindered from participating in the total program range.

Virtually every student in the population who was at least 16 years old during any of the four years of the present study was included in the sample. Each of the 437 students in the sample was included in at least one phase of the vocational program, and contributed to the data collection. Because of significant physical and/or sensory handicaps, approximately 9% of the sample was excluded from the data collected by means of the psychological test battery.

In both the vocational and psychological data sample there was a ratio of approximately 2:1, males to females. During the four years of the study, the mean age of the sample did not vary by more than nine months from 18½ years; the ages ranged from 15 to 25 years across the entire four years, but in no one year was age span in the sample greater than eight years. Mean IQ of the sample closely approximated that of the population from which it was drawn. During the first year of the study the sample mean IQ was 62, and in each of the succeeding three years it was 64; the associated MA's were 9-2 and 9-5, respectively. The range of IQ scores (30-126) of the sample was greater than that of the institutional population, probably because of the character of the test (Peabody Picture Vocabulary Test, Form A) which had been selected to assure uniformity in assessment procedure and intervals.

Part II

EVALUATING THE VOCATIONAL POTENTIAL

Chapter 3: Vocational Appraisal

Chapter 4: Psychological Appraisal

Chapter 5: Vocational Interest and Sophistication Assessment

Chapter 3

VOCATIONAL APPRAISAL

Neale L. Peterson

Joseph J. Parnicky

PREVOCATIONAL EVALUATION PROGRAMS ARE DESIGNED AS TESTING AND EXPLORATORY SITUATIONS. FOR THE REHABILITATION STAFF THEY PROVIDE AN ASSESSMENT OF THE CLIENT'S VOCATIONAL POTENTIALS, INTERESTS AND FUNCTIONING LEVELS; FOR THE CLIENT THEY PROVIDE OPPORTUNITIES TO EXPLORE A VARIETY OF WORK POSSIBILITIES. AN UNDERLYING RATIONALE OF SUCH PROGRAMS IS THAT THE CLOSER THE TESTING SITUATION APPROXIMATES THE REAL LIFE SETTING, THE MORE ACCURATE THE EVALUATION WILL BE AND THE MORE MEANINGFUL THE EXPERIENCE. FOR EXAMPLE, FRAENKEL (1961) MAINTAINS THAT "A FUNCTIONAL OBSERVATION OF THE PERSON IS...OF PRIME IMPORTANCE."

ORIGINATING IN VOCATIONAL PROGRAMS FOR THE PHYSICALLY DISABLED, PREVOCATIONAL PROGRAMS HAVE BEEN GAINING WIDESPREAD ACCEPTANCE AND APPLICATION WITHIN AGENCIES FOR THE MENTALLY RETARDED (DIMICHAEL, 1960). ALONG WITH THIS DEVELOPMENT, ATTENTION HAS BEEN DIRECTED TOWARD STUDYING THE relative effectiveness of prevocational approaches, but as yet only to a limited degree. As Kolstoe (1960) points out, "work sample seems to be the best present predictor of work success, yet this observation does not seem to have been validated". Project 425 was directed in large measure to exploring the relative contributions of two basically different approaches to prevocational evaluation within a residential center for educable adolescents.

This study was designed to compare evaluations secured from simulated work situations within a prevocational Unit with those based on real work situations in the prevocational Field program as predictors of vocational potential. In the Unit evaluation approach, a variety of work sample tasks were used as predictors. The study analyzed the predictive potential of data such as specific measures of performance -- time, errors, units, grades -- as well as ratings based on overall performance. The Field approach employed actual work training situations on the Johnstone campus to obtain overall estimates of the students' potentials for vocational habilitation. By comparing the data from these sources, the study hoped to contribute to the practitioners' appreciation of the relative import of the simulated and actual work samples for predicting later performance in training and employment.

PROGRAM

Unit and Field prevocational evaluations were each set up on an eight week basis. The duration was related both to the range of experiences which were included in each form of evaluation and the Center's semester pattern of scheduling training. The Unit was developed to the point where

IT INCLUDED OVER 40 WORK SAMPLE TASKS DIVIDED INTO FOUR MAJOR OCCUPATIONAL CATEGORIES: CLERICAL, HAND-TOOL MANIPULATION, LIGHT INDUSTRY AND SERVICE.

UPON ASSIGNMENT TO THE PREVOCATIONAL UNIT, STUDENTS WERE GIVEN TRIALS ON EVERY WORK SAMPLE TASK. FOLLOWING THE FIRST TRIAL, EACH STUDENT WAS ASSIGNED FURTHER TRIALS IN ACCORDANCE WITH DEMONSTRATED LEVEL OF PERFORMANCE IN ORDER TO PROVIDE THE VOCATIONAL COUNSELOR WITH ADDITIONAL OBSERVATIONS AND INFORMATION ON WHICH TO BASE THE RATINGS OF EACH STUDENT'S POTENTIAL. IN RECOGNITION OF DIFFERENTIAL BACKGROUNDS AND COMPETENCIES AMONG THE STUDENTS, THREE TYPES OF EVALUATION SCHEDULES WERE DEVELOPED IN THE UNIT. ONE SCHEDULE EMPHASIZED TASKS REQUIRING READING AND ARITHMETIC SKILLS; ANOTHER PLACED EMPHASIS ON TASKS REQUIRING MANIPULATIVE SKILLS; AND THE THIRD WAS A BALANCE OF THE TWO EMPHASES. STUDENTS WERE SHIFTED IF THE COUNSELOR'S LATER IMPRESSIONS JUSTIFIED A CHANGE TO ANOTHER SCHEDULE. RATINGS BY THE COUNSELOR WERE SUBMITTED MONTHLY ON EACH STUDENT, BASED ON THE LATTER'S OVERALL PERFORMANCE.

THE FIELD EVALUATION SEGMENT OF THE PROJECT WAS DEVELOPED TO INCLUDE THE MAJORITY OF ON-CAMPUS OPERATIONS WITHIN THE CAPACITY OF THE MILDLY RETARDED ADOLESCENT. FEMALE STUDENTS WERE AFFORDED PREVOCATIONAL EXPERIENCES IN SIX WORK AREAS: CLOTHING ROOM, DORMITORY CARE, FOOD SERVICE, HOUSEKEEPING, LAUNDRY AND OCCUPATIONAL WORKSHOP. MALE STUDENTS WERE TRAINED IN TWO ADDITIONAL WORK AREAS: BUILDING MAINTENANCE AND GARAGE. WHILE THE NATURE OF EACH WORK AREA IS CLEAR FROM THE DESIGNATION, THE OCCUPATIONAL WORKSHOP HAD CHARACTERISTICS WHICH WERE UNIQUE TO THE CENTER'S PROGRAM. THE WORKSHOP WAS INITIATED BY THE STAFF TO AFFORD STUDENTS SOME EXPERIENCE WHICH MIGHT APPROXIMATE LIGHT INDUSTRY. STATE regulations forbid procurement of contract work, therefore activities had to be limited to those which would be of direct use to State agencies. Activities within the workshop have ranged from collating and binding reproduced material to assembling shoe boxes, and bedsprings. Since the requisitions for these products were of varying duration, the actual experiences afforded students differed widely over the period of this project.

The general pattern followed in the Field evaluation was for a student to spend a week in each of the work areas. Female students spent two weeks in two of the areas. During this period they were observed by supervisors designated from the regular staff of the respective area, i.e. the cook, the attendant, the laundress. The majority of such supervisors have had training at Johnstone in methods of job-instruction and evaluation and all were afforded periodic consultation with a staff member of the vocational department. Furthermore, it should be noted that, in the main, work training areas have been staffed so that production is not dependent upon student labor.

EVALUATION METHODS

As previously mentioned, two types of evaluation were secured in the prevocational Unit. The first was concerned with specific performance on the sample tasks. Wherever possible these were scaled on objective measures, such as: time required to complete the task; units produced; and number of errors. For some tasks, qualitative grades of a subjective nature were also appropriate, as in alphabetical filing. For other tasks, only subjective grades were ascribed, i.e. using a floor polisher or a coping saw. Grades

WERE GIVEN ON A FIVE POINT SCALE RANGING AS FOLLOWS: 1, VERY POOR; 2, POOR; 3, FAIR; 4, GOOD; AND 5, VERY GOOD. THE WORK SAMPLE TASKS USED AS PREDICTORS AND THE NATURE OF THE SCORE OBTAINED WITH EACH ARE PRESENTED IN APPENDIX A-1.

THE OTHER FORM OF UNIT EVALUATION WAS AN OVERALL RATING* BY THE VOCATIONAL COUNSELOR WHO SUPERVISED THE STUDENT ON THE RANGE OF SAMPLE TASKS. IN COMPILING THIS EVALUATION, THE COUNSELOR TOOK INTO CONSIDERATION NOT ONLY THE PERFORMANCE OF THE STUDENT DURING THE EIGHT WEEK PERIOD, BUT ALSO SUCH OBSERVATIONS AS THE LATTER'S REACTIONS TO SUGGESTION AND CRITICISM, PERSONAL HABITS AND APPEARANCE, AND RELATIONSHIP WITH OTHER TRAINEES.

FROM THE FIELD, WEEKLY RATINGS WERE SECURED FROM EACH OF THE SUPERVISORS ASSIGNED STUDENTS FOR EVALUATION. ROTATING THE STUDENTS AMONG THE SERIES OF WORK AREAS PROVIDED MEANS FOR OBSERVING EACH INDIVIDUAL IN A VARIETY OF JOBS AND SKILLS, MANY OF WHICH WERE SAMPLED IN THE UNIT EVALUATION. MOREOVER, IT AFFORDED AN OPPORTUNITY TO TEST THE STUDENT'S CAPACITY TO ADJUST TO DIFFERENT SUPERVISORS, CO-WORKERS AND OTHER CONDITIONS. THIS ROTATIONAL PROCEDURE WAS ALSO INSTITUTED TO MINIMIZE INTER-RATER DIFFERENCES. FIELD RATINGS WERE MADE BY PERSONNEL WHOSE BACKGROUNDS WERE PRIMARILY IN PRODUCTION AND NOT IN INSTRUCTION OR EVALUATION. METHODS USED TO ORIENT THE SUPERVISORS TO THE LATTER RESPONSIBILITIES WERE NOTED EARLIER.

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*THE VOCATIONAL PERFORMANCE AND ADJUSTMENT RATING SCALE (APPENDICES A-2, B-1) WAS USED IN ALL PHASES OF THE PROGRAM WHERE RATINGS WERE SECURED.

For the purpose of the project, one half of the students in Phase I were first assigned to the Unit program for evaluation and the other half were placed in work areas for Field evaluation. To nullify sequence effects on the predictiveness of the evaluation measures studied, the two groups of students were reversed at mid-semester.

SAMPLE

During the years of the project's duration, a total of 116 students (66 male; 50 female) completed the Unit part of the prevocational evaluation sufficiently for study purposes; and 121 students (68 male; 53 female) comprised the sample in the Field evaluation. The difference is attributable to the normal attrition which occurs at all points in the program of the Center.

In both forms of prevocational evaluation, the average student was in his 16th year at the time he entered Phase I. The ages ranged from a few who were 15½ years old to one as old as 18. The IQ distribution was parallel to that for the student population as a whole, that is the majority were within the mildly retarded level. Only four students had serious secondary physical disabilities which could affect their vocational achievement.

DATA TREATMENT

For statistical purposes, several conditions dictated the reduction of the mass of data derived from the evaluation procedures. The overall considerations were time and resources. More specifically was the fact that in the Unit some of the tasks were too difficult for the population

SAMPLED AND THEREFORE AN INSUFFICIENT NUMBER OF SUBJECTS WERE AVAILABLE. IN OTHER TASKS, THE MEASURES USED DID NOT PROVE TO BE SUFFICIENTLY DISCRIMINATORY TO PROVIDE A RANGE OF SCORES. THUS THE NUMBER OF TASKS REPORTED HERE AS PREDICTORS IS 27 FOR MALES AND 22 FOR FEMALES (APPENDIX B-2), AS COMPARED WITH THE MORE THAN 40 WHICH WERE EXPERIMENTED WITH IN THE UNIT. IN ADDITION, ONLY RESULTS ON FIRST TRIAL ARE REPORTED. THIS WAS DONE FOR TWO PURPOSES. THE PRIMARY ONE WAS TO SEE HOW PREDICTIVE THE TASK MEASURES WERE PER SE, THAT IS, EXCLUDING THE INFLUENCE OF TRAINING THROUGH REPETITION. SECONDLY, STAFF DEEMED IT INADVISABLE TO CONTINUE SUBJECTING ALL STUDENTS TO ALL TASKS, THEREFORE DIFFERENT SCHEDULES WERE WORKED OUT AS DESCRIBED IN AN EARLIER PORTION OF THIS CHAPTER.

CONSIDERATIONS ALSO DICTATED DELIMITING THE DATA PROVIDED BY THE COUNSELOR. OF THE MONTHLY RATINGS THE COUNSELOR COMPLETED ON EACH STUDENT, ONLY THE LAST WAS INCLUDED IN THE ANALYSIS. THE RATIONALE WAS THAT THIS REPRESENTED THE COUNSELOR'S FINAL JUDGMENT AND WOULD NORMALLY BE THE ONE TRANSMITTED FOR PROGRAMMING THE STUDENT'S TRAINING.

AS FOR FIELD EVALUATIONS, ANOTHER SET OF CONDITIONS WERE PRESENT. THESE RATINGS WERE BASED ON WEEKLY IMPRESSIONS PROVIDED BY A NUMBER OF WORK SUPERVISORS. MOREOVER SOME STUDENTS HAD A SECOND WEEK IN A PARTICULAR WORK AREA. FOR FEMALES THIS WAS BY DESIGN, SINCE THEY WERE ROTATED AMONG SIX AVAILABLE WORK AREAS DURING THE EIGHT WEEKS IN THE FIELD. IN OTHER CASES THE REPETITION WAS DUE TO SCHEDULING PROBLEMS. THIS MATTER WAS RESOLVED BY AVERAGING THE FIRST AVAILABLE RATINGS FROM ALL WORK AREAS TO WHICH A STUDENT WAS ASSIGNED, WITH THE MEAN BEING BASED ON NO FEWER THAN FIVE RATING SHEETS.

Ratings obtained from postevaluation Phases II, III, and IV were used as the criteria with which scores and ratings from the Unit and ratings from the Field were correlated. To explore possible changes in correlations secured in the course of the training process, the rating sheets at the start of Phase II and III as well as those at the end of these phases were used. Since these ratings were submitted monthly by work area supervisors and the duration students remained in the phases varied, a procedure for standardizing the data processed was required. When students were in a phase for nine or more months, the sums of the first three ratings and the sums of the last three ratings were used. In cases where students had shorter assignments, the last three ratings were used, providing the student had at least a half year in the particular phase. These conditions helped exclude subjects who were in either phase for too brief a time to afford the student opportunity to move beyond the stage of initial adjustment and the training staff opportunity to gain adequate acquaintance with the particular individual. The procedure also accounts heavily for the fact that the N is usually higher at the end of a phase than at the start.

In Phase IV another procedure was required. Here the student was being evaluated by employers in the community. On a daywork status, the student might have worked but a single day in a week or all five days. He might have been with a single employer or he might have worked for a different employer each day. Ratings were submitted at the termination of each employment, but not less than once a week. To secure a representative measure of the student's performance in the daywork program, it was deemed necessar to obtain a concensus of the employers' ratings. To assur

AS WELL THAT THE RATINGS COVERED ROUGHLY A PERIOD OF A MONTH, THE LAST SIX RATINGS FROM EMPLOYED IN PHASE IV WERE SUMMED.

MEANS, STANDARD DEVIATIONS AND PRODUCT MOMENT CORRELATIONS WERE COMPUTED FOR THE SELECTED DATA. THE MEANS OF MALE AND FEMALE SCORES AND RATINGS IN PHASE I WERE SUBJECTED TO T TESTS AND RESULTS INDICATED NO ESSENTIAL DIFFERENCE BETWEEN THE TWO GROUPS.* IN CORRELATING PREVOCATIONAL FINDINGS WITH MEASURES IN SUBSEQUENT PHASES OF TRAINING, MALES AND FEMALES WERE HANDLED SEPARATELY IN VIEW OF POSSIBLE PREDICTIVE DIFFERENCES BY SEX. ONLY CORRELATIONS AT THE .01 LEVEL OR BEYOND ARE REPORTED AS SIGNIFICANT.

FINDINGS

TO DETERMINE THE RELATIVE INDEPENDENCE OF THE SCORES BASED ON TASKS IN THE PREVOCATIONAL UNIT AND THE INDIVIDUAL RATINGS ON THE VOCATIONAL PERFORMANCE AND ADJUSTMENT RATING SCALE BOTH IN THE UNIT AND FIELD IN PHASE I, INTERCORRELATIONS OF EACH SET OF MEASURES WERE COMPUTED. THE NUMBER OF CORRELATIONS AT THE .01 LEVEL OF SIGNIFICANCE WAS MARKEDLY DIFFERENT FROM MATRIX TO MATRIX. UNIT TASK SCORES SHOWED THE LOWEST NUMBER OF SIGNIFICANT CORRELATIONS FOR BOTH SEXES, 66 FOR MALES AND 34 FOR FEMALES OUT OF A POSSIBLE 595 FOR THE FORMER AND 435 FOR THE LATTER. UNIT RATINGS INTERCORRELATED SIGNIFICANTLY IN 69 CELLS FOR MALES AND 51 FOR FEMALES OUT OF A TOTAL POSSIBILITY OF 78 IN EACH MATRIX. FIELD PREVOCATIONAL RATINGS FOR MALES PROVED TO BE 100%

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*MEANS, RANGES AND STANDARD DEVIATIONS OF UNIT SCORES FOR THE SAMPLE POPULATION ARE PRESENTED IN APPENDIX B-3.

intercorrelated; and for females the results were almost equal, 76 out of 78 r's were at the .01 level.

As for the predictive potential of the Unit scores, the results were somewhat stronger for evaluations made of male subjects than those of female. This, with some variations appeared to be in evidence from each of the three sets of measures used in Phase I (Appendices B-4 through B-12). Moreover the pattern, with exceptions, was stronger with the end of Phases II and III than with the beginning of these two phases, that is the on-campus training phases. Neither the two sets of prevocational Unit measures nor the one set of prevocational Field measures predicted performance ratings in Phase IV, the off-campus daywork stage.

Based on the relative number of significant correlations, the Unit tasks proved to be the weakest of the three sets of predictors used in this aspect of the Project (Appendix B-12). The strongest predictions using task scores were to the end of Phase II when 15% of the male r's and 8% of the female r's proved significant at the .01 level.

Unit ratings secured in Phase I were more strongly related with subsequent phases (Appendices B-8, B-9). The highest prediction was with male subjects at the end of Phase II. One-third of the correlations were at the .01 level or beyond. Curiously, among the females the pattern of predicting better to the end of a phase as compared with the start of a training phase was reversed. At the start of Phase II, 18% of the female r's were significant; at the end but 3% met the same test. Unit ratings correlated with the end of Phase III in 8% of the male totals and 5% of the female. As for predicting to Phase IV, only one male r proved significant and no female.

Field ratings in Phase I (Appendices B-10, B-11) proved significantly related with end of Phase II in 71% of the male computations and 67% of the female. Also in both male and female matrices, the correlation was stronger with the end of Phase II than with the start. Field prevocational ratings, however, proved to be poor predictors of ratings at the end of Phase III, only 3% of the male r's and 1% of the female were at the .01 level. There was a notable departure insofar as Phase IV was concerned, at least for the males. Among these correlations the Field prevocational ratings proved to have significant linkage with the daywork ratings in 6% of the matrix. None of the female r's were statistically significant.

Returning to the Unit scores, examination of the correlation matrices (Appendices B-5, B-6) indicates that the tasks for males which predicted over one-third of the ratings at the end of training Phase II included: fixing a window pane, making a bed, using a floor polisher and using a screwdriver. Among the female prevocational scores, most of the significant r's were derived from: using a floor polisher, making a bed, and sweeping. It should be noted that all these were subjective grade scores made by the counselor and not objective scores like units, errors or time. Moreover, the scores predict more heavily Phase III ratings in job skills and interpersonal relations, particularly in the male matrix.

As for the Unit ratings in Phase I (Appendices B-8, B-9), THREE RATINGS -- APPEARANCE, ATTENDANCE AND QUALITY -- ACCOUNTED FOR MORE THAN HALF OF THE SIGNIFICANT CORRELATIONS WITH THE END OF PHASE II RATINGS. ONCE AGAIN THE SCORES PREDICTED MOST HEAVILY THE RATINGS IN JOB SKILLS, AND SECONDARILY RATINGS OF APPEARANCE IN TRAINING. IN THIS SERIES AS MENTIONED ABOVE, THE PREDICTIONS FOR FEMALES WERE HEAVIER TO THE BEGINNING OF PHASE II THAN TO THE END. UNIT RATINGS IN APPEARANCE, ATTENDANCE AND ABILITY TO WORK WITHOUT SUPERVISION PREDICTED THE MAJORITY OF THE FEMALE PHASE II RATINGS AT THE START. MOSTLY THEY PREDICTED RATINGS IN JOB SKILLS AND APPEARANCE IN TRAINING PHASE II.

PREVOCATIONAL FIELD RATINGS (APPENDICES B-10, B-11) THAT PROVED MOST PREDICTIVE OF RATINGS RECEIVED AT THE END OF PHASE II FOR MALES WERE: INDUSTRIOUSNESS, PERSONAL HABITS AND MANNERS, AND WORKER RELATIONSHIP. POOREST PREDICTORS WERE FIELD RATINGS IN ATTENDANCE AND PUNCTUALITY. FIELD RATINGS PREDICTED MOST HEAVILY TRAINING RATINGS IN ITEMS COVERING JOB SKILLS AND INTER-PERSONAL RELATIONS. FOR FEMALE TRAINEES, THE MOST PREDICTIVE FIELD RATINGS WERE: ATTITUDE, QUALITY, AND QUANTITY. THE POOREST FIELD RATINGS WERE ATTENDANCE AND APPEARANCE IN THAT EACH HAD BUT ONE SIGNIFICANT CORRELATION WITH TRAINING RATINGS AT THE END OF PHASE II. AS FOR MALES, THE FIELD RATINGS PREDICTED BEST THE RATINGS IN JOB SKILLS AND INTERPERSONAL RELATIONS FOR GIRLS.

DISCUSSION

INTERCORRELATIONS OF TASK SCORES INDICATE THESE ARE RELATIVELY MORE INDEPENDENT MEASURES THAN ARE RATINGS DRAWN FROM THE UNIT SAMPLE TASKS OR RATINGS BASED ON FIELD WORK

AREAS. IN FACT, THE LAST ARE SO HIGHLY CORRELATED THAT THE HALO-EFFECT PERMEATES THE WHOLE LIST OF ITEMS RATED FOR MALES AND ALMOST SO FOR FEMALES. IN VIEW OF THIS, IT WAS SOMEWHAT SURPRISING TO FIND THAT DIFFERENTIAL PREDICTIONS AMONG THE RATING ITEMS DID APPEAR IN THE CORRELATIONS BETWEEN PHASE I AND SUBSEQUENT TRAINING EVALUATIONS.

AS FOR THE PATTERN OF PREDICTIONS OBTAINED, THE PREDICTIONS FROM PREVOCATIONAL PHASE I TO TRAINING ARE STRONGEST WITH PHASE II, AND PRACTICALLY NIL WITH PHASE IV. SINCE PHASE I AND II ARE CONSECUTIVE AND PHASE IV USUALLY OCCURS SOME TWO OR MORE YEARS AFTER THE PREVOCATIONAL PHASE, IT WOULD APPEAR THAT TIME DISTANCE MAY CONTRIBUTE TO THE DIMINISHING PREDICTIVENESS. THIS IS REINFORCED BY THE FACT THAT THE NUMBER OF SIGNIFICANT CORRELATIONS IN PHASE III WERE USUALLY BETWEEN THE NUMBER IN PHASE II AND IV.

AN ADDITIONAL CONDITION WHICH MAY BEAR ON THE DIMINISHING PREDICTIVENESS OF PREVOCATIONAL EVALUATIONS WITH EACH SUCCEEDING PHASE IS THE SIFTING PROCESS CHARACTERISTIC OF THE JOHNSTONE PROGRAM. STUDENTS ARE ADVANCED AS THEY SHOW ACHIEVEMENT. THOSE WHO DO POORLY AND CONFIRM INITIAL QUESTIONS AS TO CAPACITY FOR HABILITATION ARE APT TO BE ELIMINATED FROM THE TRAINING. THIS PROCESS UNDOUBTEDLY TENDED TO REDUCE THE SIGNIFICANT R'S WITHIN THE LATER VOCATIONAL PHASES.

ANOTHER FACTOR WHICH MAY BE CONTRIBUTING TO THE PATTERN IS THE FACT THAT PHASES II AND III ARE BOTH ON-CAMPUS TRAINING PERIODS. DURING THESE SEMESTERS, RATINGS OF PROGRESS ARE SUBMITTED BY PERSONNEL WHO ARE ORIENTED TO THE CENTER'S PHILOSOPHY AND INVOLVED IN THE DEVELOPMENT

OF THE HABILITATION PROGRAM. ON THE OTHER HAND, THE RATINGS IN PHASE IV ARE DETERMINED BY EMPLOYERS IN THE COMMUNITY. WHILE THESE EMPLOYERS ARE SELECTED BY THE VOCATIONAL STAFF, THE FORMER ARE BY NO MEANS AS CLOSELY KNITTED TO THE INSTITUTION AS THE ON-CAMPUS SUPERVISORS. IN FACT, IT IS THIS DISTANCE FROM THE ON-CAMPUS PROGRAM WHICH IS PURPOSELY DESIRED AND SOUGHT. TO PROVIDE A REAL TEST OF THE RESIDENTIAL PROGRAM, THE DAYWORK EMPLOYERS SHOULD REPRESENT THE VIEWS OF THE COMMUNITY. EVIDENTLY THERE IS CONSIDERABLE DIFFERENCE BETWEEN PREVOCATIONAL EVALUATIONS ON-CAMPUS AND THE RATINGS WHICH ARE GIVEN BY OFF-CAMPUS EMPLOYERS TO TRAINEES TWO OR MORE YEARS LATER. THIS SUGGESTS THAT THE COUNSELORS AND OTHER STAFF RESPONSIBLE FOR THE PREVOCATIONAL EVALUATION NEED TO ATTEND TO AT LEAST TWO MATTERS. ONE IS A REVIEW OF THE ITEMS WHICH APPEAR TO HAVE PREDICTIVE POTENTIAL TO DETERMINE IF THEY CAN BE SHARPENED FURTHER. THE OTHER IS REPLACING WITH NEW MEASURES THOSE ITEMS WHICH APPEAR TO HAVE NO SIGNIFICANT CORRELATION WITH SUBSEQUENT EVALUATIONS.

THE PATTERNS OF PREDICTION ALSO SUGGEST ANOTHER THOUGHT WHICH MAY HAVE BEARING ON TRAINING PROGRAMS. PREDICTIONS IN THIS STUDY WERE GENERALLY GREATER TO TERMINAL THAN TO INITIAL RATINGS IN EACH OF THE TRAINING PHASES. IN OTHER WORDS PREDICTABILITY MAY WELL BE A FUNCTION OF THE POINT IN THE TRAINING CONTINUUM AT WHICH THE CRITERION IS DRAWN. SO OFTEN STUDIES REPORTED HAVE USED A SINGLE POINT AS THE MEASURE OF SUCCESS OR FAILURE IN PREDICTING POTENTIAL. THE PRESENT RESULTS APPEAR TO INDICATE THAT MUCH MIGHT BE LEARNED IF STUDENTS WERE FOLLOWED MORE CLOSELY THROUGHOUT THE COURSE OF HABILITATION FROM PREVOCATIONAL EVALUATION THROUGH A PERIOD OF PLACEMENT. THE FINDINGS HERE TEND TO UPHOLD THE PREMISE THAT STUDENTS EXPRESS DISTINCTLY DIFFER-

ENT BEHAVIOR AND ACHIEVEMENT PATTERNS DURING THE INITIAL MONTHS OF A NEW TRAINING COURSE THAN THEY DO IN LATER MONTHS IN THE SAME TRAINING PHASE.

AS FOR THE DIFFERENTIAL PREDICTIONS BY SEXES WHICH APPEAR TO BE CONSISTENT IN ALL THREE MEASURES, TWO CONDITIONS MAY HAVE CONTRIBUTED TO THE RESULTS OBTAINED. FOR ONE, THE SIZE OF THE MALE SAMPLE WAS AT MANY STAGES APPRECIABLY GREATER THAN THAT OF FEMALES. THIS OF COURSE, MEANT THAT CORRELATIONS OF RELATIVELY LOWER MAGNITUDE MET THE ACCEPTED LEVEL OF SIGNIFICANCE IN THE MALE MATRICES THAN IN THE FEMALE MATRICES. THE OTHER CONDITION MAY HAVE BEEN THE RANGE OF TRAINING AND JOB OPPORTUNITIES FOR GIRLS AS COMPARED WITH BOYS. BOTH ON CAMPUS AND IN THE COMMUNITY THE VARIETY OF JOBS HAVE BEEN MORE RESTRICTED FOR GIRLS.

TO A DEGREE, THE DATA ANALYZED SHOW THAT FIELD PREDICTIONS ARE MORE ACCURATE THAN THOSE MADE IN THE UNIT, WHETHER TASK SCORES OR RATINGS ARE USED. PRACTITIONERS IN THE FIELD WHO HAVE WORKED DILIGENTLY TO STAFF EVALUATION SERVICES WITH PROFESSIONAL PERSONNEL MAY FIND THESE RESULTS ALARMING, FOR THE FORMER PREDICTIONS WERE MADE BY JOB SUPERVISORS, NONE OF WHOM CARRIED CREDENTIALS IN VOCATIONAL REHABILITATION. BEFORE ANY NEGATIVE CONCLUSIONS ALONG THESE LINES ARE DRAWN, SEVERAL ASPECTS SHOULD BE CONSIDERED. ONE POINT THAT SHOULD BE KEPT IN MIND IS THAT JOB SUPERVISORS IN THE PROJECT WERE INVOLVED IN MAKING RATINGS IN BOTH THE EVALUATION AND TRAINING PHASES ON CAMPUS. THE COMPARATIVE PREDICTIVENESS OF THE THREE SETS OF MEASURES MAY BE RELATED TO THE TYPE OF WORK SITUATION USED, AS WELL AS TO THE EVALUATOR. FROM THIS STANDPOINT, IT WOULD APPEAR THAT THE DATA UPHOLDS POSITIONS TAKEN BY KOLSTOE (1960) AND FRAENKEL (1961). THUS THE BEST PREDICTORS WERE THE EVALuations drawn from the on-campus work areas; the poorer predictors were drawn from simulated work situations. Despite the apparent weakness of the Unit tasks as predictors, the counselor's ratings which were based on observations of performance of trainees in these tasks, yielded more significant correlations than did the Unit scores.

The relatively favorable results obtained from the Field indicates a source of assistance in determining vocational prognosis that may be overlooked in the search for ever higher professional competency. The cooks, attendants, and housekeepers can provide critical information regarding students' performance and behavior. They apparently can be quite good predictors of vocational potential when making judgments based on observations in their own line of work. Their predictions are by no means so accurate that review by qualified counselors should be ruled out. In fact, observations in the course of the project highlighted a number of instances where the judgments of the counselor complimented the opinions of the job supervisor to the advantage of the student. Thus, the data seem to point to the importance of discovering ways in which to use rehabilitation counselors and job supervisors, with their respective capabilities, more effectively in order that prevocational predictions may be improved.

At best, the predictive vocational appraisals made in this aspect of Project 425 did not prove to be highly accurate except in the immediately succeeding phase of training at the Center. An additional facet which may be worth exploring is whether or not combining predictors from the Unit and Field evaluations would raise the proportion of significant correlations over that obtained by the measures independently. However, in view of the high correlations which were obtained between Unit measures and Field ratings, it is doubtful that multiple r's of the data in this study would offer more predictive efficiency than is available from either prevocational area alone.

SUMMARY

This portion of the project tested in a preliminary way the relative predictiveness of scores and ratings obtained from a series of simulated tasks in a workshop and of ratings based on trainees' performance in actual work situations in a residential center. Predictions for males were stronger than for females; predictions to the endings of training phases were stronger than to the beginnings of phases; predictions to on-campus training were stronger than to daywork in the community; predictions drawn from actual work areas were stronger than those made on the basis of simulated sample tasks. Recognizing that the results are tentative, and are based on one residential program's experiences, some implications for the field of rehabilitation and for further study are drawn.

Chapter 4

PSYCHOLOGICAL APPRAISALS

Arthur Burdett

Harris Kahn

Although in recent years an increasing number of investigations (Cowan and Goldman, 1959; Ferguson, 1958; Kolstoe, 1961; Kolstoe and Shafter, 1961; Warren, 1961; Walker, 1951) have been concerned with prediction of vocational success of retardates, at the initiation of the present study reports of the predictive efficiency of psychological tests were sparse and contradictory. Tizzard and O'Connor (1956) reported ratings as the most successful, although rather unrealiable, predictors of vocational success. Other good predictors reported by these investigators were a pegboard test combined with an instability rating, and an objective test combined with railwalking and body-sway tests. The pegboard test was found in another study, by Tobias and Gorelick (1960), to correlate highly with such measures of work success as production of ball point pens, wire clamp assemblies, or earrings. Although measures of intelligence usually have not been found to be related to vocational

SUCCESS OF RETARDATES, A MEASURE DERIVED FROM THE WECHSLER-BELLEVUE, FORM I WAS REPORTED BY FRY (1956) AS SUPERIOR TO OTHER PREDICTORS OF WORK SUCCESS. IN OTHER STUDIES, PERSONALITY OR TEMPERAMENTAL CHARACTERISTICS (SHAFTER, 1957), OR OBJECTIVE INDIVIDUAL HISTORIC DATA (DINGMAN, 1959; MAGAW AND SULLIVAN, 1945), HAVE BEEN REPORTED AS MORE CLOSELY RELATED THAN ARE MOTOR SKILLS WITH JOB SUCCESS.

IN INVESTIGATIONS WHICH HAVE BEEN REVIEWED, THE DESIGN GENERALLY WAS TO PREDICT FROM A SMALL NUMBER OF VARIABLES TO TEMPORALLY CONTINGENT JOB PERFORMANCES. VIRTUALLY NO REPORTS WERE FOUND ON ATTEMPTS TO PREDICT FROM PSYCHOLOGICAL MEASURES TO PROGRESS OR ADJUSTMENT IN VOCATIONAL TRAINING, ALTHOUGH THE LATTER WOULD APPEAR TO REPRESENT AN IMPORTANT COMPLEX OF VARIABLES INTERVENING BETWEEN THE PREDICTORS AND THE ULTIMATE CRITERIA.

THE INCLUSION OF PSYCHOLOGICAL MEASURES IN THE PRESENT STUDY WAS INTENDED TO ACHIEVE SEVERAL GOALS: INVESTIGATION OF THE PREDICTIVE EFFICACY OF A NUMBER OF PSYCHOLOGICAL MEASURES (MOTOR, PERSONALITY-TEMPERAMENT, AND INTELLECTUAL) AND PREDICTION OF ADJUSTMENT AND PERFORMANCE OVER EXTENDED PERIODS OF TIME THROUGH VARIOUS STAGES OF VOCATIONAL TRAINING. ADDITIONALLY, THE PRESENT STUDY WAS INTENDED TO PROVIDE INFORMATION WHICH HAD NOT BEEN PREVIOUSLY AVAILABLE ON THE RELIABILITIES AND INTERCORRELATIONS OF A WIDE ARRAY OF PSYCHOLOGICAL MEASURES WITH MENTALLY RETARDED SUBJECTS.

TESTING PROCEDURES

THE BATTERY INCLUDED THREE VARIETIES OF TESTS: MOTOR, PERSONALITY-TEMPERAMENT, AND INTELLECTUAL, ALL OF WHICH WERE SELECTED BECAUSE THEY PERMITTED OBJECTIVE SCORING. THE ARRAY of motor tests permitted collection of scores on a wide range of gross and fine dexterity, rhythmic performance, and visual discrimination. Included in the series were: Stromberg Dexterity, Purdue Pegboard, Crawford Small Parts Dexterity, Heath Railwalking, Pennsylvania Bi-Manual Worksample, Bead Stringing and Bennett Hand Tool Dexterity (Appendix C-1). The Bead Stringing Test was developed by the staff of this project to fill an assumed need for a task with which female subjects would relate more readily (Appendix C-2).

In an attempt to measure personality and temperamental factors which presumably would be related to vocational performance, the battery included the Lipman Adaptation of the Children's Manifest Anxiety Scale (Lipman, 1960), the Locus of Control Scale (Appendix C-4), and measures of Levels of Aspiration (Appendix C-3). The Children's Manifest Anxiety Scale yields an Anxiety score and a Lie score. Presumably high anxiety levels would impede vocational adjustment indirectly because of the associated social maladaptation. At the time of its adoption in this study, the Locus of Control Scale, a device developed by Bialer (1961), was an experimental approach to assessment of the degree to which an individual perceives that he acts upon, or is acted upon by, his interpersonal environment. This technique was included for the possibility that relationships could be discovered in the relatively neglected research area of interdependency of interpersonal and vocational adjustments. For similar reasons (Blackman and Kahn, 1963) the measures of Levels of Aspiration were included. Under experimental manipulation of success and failure, in individual and group contexts and competitive condition, seven measures of subjects' Levels of Aspiration were obtained.

THE MEASURES OF INTELLIGENCE USED CLINICALLY IN THE PSYCHOLOGICAL EVALUATION PROGRAM OF THE CENTER WERE NOT NECESSARILY THE SAME FOR ALL STUDENTS, AND THE SCHEDULE OF ROUTINE EXAMINATIONS COULD NOT BE IN UNIFORM TIME RELATIONSHIP TO THE PSYCHOLOGICAL DATA COLLECTION PROGRAM OF THIS STUDY. IN ORDER TO ACHIEVE UNIFORMITY IN MEASUREMENT, A SINGLE, QUICKLY ADMINSTERABLE TEST, THE PEABODY PICTURE VOCABULARY TEST, FORM A, WAS SELECTED FOR INCLUSION IN THE BATTERY.

STANDARD ADMINISTRATION AND INSTRUCTION WERE EMPLOYED FOR EACH OF THE PUBLISHED TESTS. BEGINNING EACH SEPTEMBER AND ENDING BY THE FOLLOWING JUNE, DATA COLLECTION WAS ACCOMPLISHED BY ADMINISTERING THE BATTERY IN FIVE SESSIONS, SEPARATED BY VARYING PERIODS, DEPENDING ON THE AVAILABILITY OF INDIVIDUAL SUBJECTS. IN EACH SESSION, THE SUB-BATTERY USUALLY CONSISTED OF AT LEAST ONE OF THE MOTOR TESTS AND AT LEAST ONE OF THE PERSONALITY-TEMPERAMENT MEASURES. THE PEABODY WAS ADMINISTERED IN THE SECOND OR THIRD SESSION.

SAMPLE

ALL STUDENTS IN THE VOCATIONAL PROGRAM, EXCEPT THOSE WHO HAD PHYSICAL OR SENSORY HANDICAPS OF SUFFICIENT SEVERITY TO PRECLUDE PERFORMANCE ON ALL OF THE TASKS, WERE INCLUDED IN THE SAMPLE FOR PSYCHOLOGICAL APPRAISAL. THE ENTIRE BATTERY OF TESTS WAS ADMINISTERED TO ALL SUBJECTS AVAILABLE DURING THE FIRST THREE YEARS OF THE STUDY. IN THE LAST YEAR, THE TIME AVAILABLE FOR COLLECTION OF DATA WAS LIMITED BY THE NECESSITY OF MEETING THE PROJECT TERMINATION DATE. CONSEQUENTLY THE SAMPLE INCLUDED ONLY THOSE SUBJECTS WHO HAD BEEN TESTED EITHER ONE OR THREE YEARS PREVIOUSLY. THIS PROCEDURE PERMITTED MAXIMUM SAMPLING FOR DETERMINATION OF of test reliabilities.

Maximum sample size was 132, 127, 129, and 73 in successive years of the project. In each year there was some sample attrition resulting from releases to community or transfers to other facilities as part of routine institutional program. Sex distribution in the sample approximated the 2:1 ratio of males to females within the institution. The annual mean ages of the sample ranged from 18.2 to 19.3 years. Mean IQ was relatively constant and virtually identical with the mean of the total institutional population. Observed wide extremes in IQ scores of the study's sample in each of the years probably is attributable to the use of the Peabody Picture Vocabulary Test, which appears to be highly verbally loaded and hence is expected to yield wider fluctuations for a population of this sort than would be obtained with more extensive individual measures of intelligence.

DATA TREATMENT

The obtained scores were modified in only one respect prior to data analysis. In order to maintain clarity, time scores were inverted by means of employment of reciprocals carried to a number of places sufficient to maintain the discriminative efficiency of original scores, thereby avoiding the necessity of considering the interpretation of algebraic sign in correlations in various combinations of measures. After such modification, data were statistically treated to yield means, standard deviations, and minimum and maximum scores for the distribution of each of the measures (Appendix C-5). Reliability estimates of each of the measures were obtained by computation of product-moment correlation matrices, involving the data of each year with each other year (Appendix C-8), to permit comparison of reliabilities in test-retest over one, two, and three year spans.

The first available set of scores for each subject was identified, the distributions were separated according to sex, and each set of data was used as the basis for additional analyses. For both males and females, matrices of intertest correlations were obtained by the product-moment method (Appendices C-6, C-7), and correlations were also obtained between each of the psychological tests and each of the prevocational worksample scores (Appendices C-9, C-10). Pooled male and female distributions on each of the psychological tests were correlated with prevocational Unit and Field ratings (Appendix C-11). In addition, the scores for the total sample were correlated with sums of the last three monthly ratings obtained in vocational training Phases II and III and with last six in Phase IV. To assure that such ratings represented achievement and adjustment of students who had a minimum of six months training, those with less were excluded (Appendix C-12). Correlations were done using first and last available sets of psychological scores. Only the former are presented inasmuch as the primary objective is prediction.

Findings

Inspection of the distribution statistics (Appendix C-5) reveals that for none of the psychological variables was there appreciable change in means from year to year. Although there were common subjects in two or more years, a considerable number of new subjects were added each year. The close

SIMILARITY IN SCORES SUGGESTS RATHER CLEARLY THAT THE ANNUAL CHANGES IN SAMPLE COMPOSITION DID NOT INTRODUCE BIASES. THERE IS, THEREFORE, REASONABLE BASIS FOR CONFIDENCE IN CONSIDERING THE ENTIRE ARRAY OF DATA AS HAVING BEEN DERIVED FROM A COMMON POOL OF SUBJECTS.

IN GENERAL, THE RELIABILITIES OF EACH OF THE MOTOR TESTS ARE HIGHLY STATISTICALLY SIGNIFICANT (APPENDIX C-8). WITH VERY FEW EXCEPTIONS, COEFFICIENTS ARE SIGNIFICANT AT THE .001 LEVEL, AND THERE IS NO APPRECIABLE TREND OF DIMINUTION IN RELIABILITY WITH INCREASE IN TEST-RETEST SPAN FROM ONE THROUGH THREE YEARS. ONLY ONE OF THE RELIABILITY COEFFICIENTS, THAT BETWEEN SECOND AND FOURTH YEAR SCORES ON THE HEATH RAILWALKING TEST, DID NOT ACHIEVE STATISTICAL SIGNIFICANCE, ALTHOUGH IT IS TO BE NOTED THAT THE OTHER AVAILABLE RELIABILITY COEFFICIENT FOR A SIMILAR TIME SPAN (FIRST AND THIRD YEARS) ON THIS TEST WAS HIGHLY SIGNIFICANT. THE APPARENT DISCREPANCY MAY BE ATTRIBUTABLE TO THE SMALLER NUMBER OF CASES FROM WHICH THE NON-SIGNIFICANT CORRELATION WAS DERIVED. TWO RELIABILITY COEFFICIENTS WERE SIGNIFICANT AT THE .01 PROBABILITY LEVEL. THESE WERE FOR FIRST AND THIRD YEAR OF THE CRAWFORD SMALL PARTS DEXTERITY (SCREWS) TEST, AND FOR THIRD AND FOURTH YEAR OF THE BEAD STRINGING TEST (PATTERN DUPLICATION).

THE STABILITY OF THE SAMPLE IN MOTOR TESTS WHICH WAS EVIDENT IN COMPARISON OF MEAN SCORES, WAS CONFIRMED BY HIGHLY SIGNIFICANT RELIABILITY COEFFICIENTS. THE HIGH DEGREE OF RELIABILITY OF EACH OF THE MOTOR TESTS INDICATES FURTHER THAT EFFICIENCY OF PREDICTION OF FUTURE SCORES WOULD NOT DIMINISH APPRECIABLY WITH INCREASE IN LENGTH OF TIME OVER WHICH PREDICTION IS ATTEMPTED.

Of the non-motor tests, the same degree of reliability and stability was observed with the Peabody scores, but not uniformly with the personality-temperament scores. Reliability coefficients of the Anxiety Scale Lie score all were significant at the .001 level, and reliability coefficients of the Anxiety score of the scale were equally significant, except for that between second and fourth year. It is to be noted, however, that the reliability coefficient for a similar time span (first and third years) was highly significant. All reliability estimates on Locus of Control scores were statistically significant, with only one, that for the longest time span (between first and fourth years) achieving the minimum accepted level at .01.

Generally, reliability coefficients of Level of Aspiration measures obtained in test-retest exceeding one-year spans were not significant. Further those measures which, under experimental manipulation, required the subject to gauge his performance against a group standard, proved to be more highly reliable over longer time spans.

In general, few differences are evident in comparison of the intertest correlations of males and females (Appendices C-6, C-7). Among motor tests, correlations were moderate to high and, with very few exceptions, were statistically significant in each of the matrices. Neither age nor intellectual measures tended to correlate with any of the motor test scores, with each other, or with personality-temperament measures. There was no tendency of correlation between the personality-temperament and motor test scores, although there were significant correlations within the grouping of personality-temperament measures. The correlations among the latter scores from male subjects tended to be of higher magnitude

THAN FROM FEMALE. GENERALLY THEN, IT MAY BE SAID THAT TWO BROAD CLUSTERINGS ARE EVIDENT IN THE INTERTEST CORRELATIONAL MATRICES. THERE IS AN EVIDENT MOTOR PERFORMANCE CLUSTER AND A PERSONALITY-TEMPERAMENT CLUSTER, AND EACH OF THESE IS RELATIVELY INDEPENDENT OF THE OTHER, OF INTELLIGENCE SCORE AND OF CHRONOLOGICAL AGE.

FOR NEITHER MALES NOR FEMALES WAS THERE EVIDENT RELATIONSHIP BETWEEN AGE, INTELLIGENCE, OR PERSONALITY-TEMPERAMENT VARIABLES AND PREVOCATIONAL UNIT SCORES. HOWEVER, THE MOTOR SKILLS TESTS IN GENERAL, AND THE STROMBERG DEXTERITY TEST IN PARTICULAR, RELATE APPRECIABLY BETTER WITH SUBJECTS' PERFORMANCES IN PREVOCATIONAL EVALUATION. OF THE ARRAY OF PSYCHOLOGICAL MEASURES, THE MAJORITY ACHIEVE SIGNIFICANT CORRELATIONS WITH AT LEAST ONE OF THE PREVOCATIONAL UNIT SCORES. ONLY MEASURES OF OTHER THAN MOTOR SKILLS DO NOT CORRELATE WITH PREVOCATIONAL WORKSAMPLE SCORES.

FURTHER ANALYSES OF THESE MATRICES REVEAL DIFFERENCES IN STRENGTH OF RELATIONSHIP BETWEEN PSYCHOLOGICAL SCORES AND PREVOCATIONAL UNIT SCORES ARRANGED BY OCCUPATIONAL CATEGORIES. TEST SCORES IN THE BATTERY WERE RELATIVELY MOST HEAVILY CORRELATED WITH UNIT SCORES IN THE LIGHT INDUSTRY CATEGORY AND LEAST WITH SCORES IN CLERICAL CATEGORY. THERE WAS INTERMEDIATE UNIFORMITY OF RELATIONSHIP WITH UNIT SCORES IN SERVICE AND HAND TOOL CATEGORIES. EVEN IN THE CORRELATIONS BETWEEN PSYCHOLOGICAL VARIABLES AND CLERICAL SCORES THE NUMBER OF R'S AT THE .01 LEVEL IS SUBSTANTIALLY GREATER THAN THAT EXPECTED BY CHANCE.

THE TOTAL NUMBER OF SIGNIFICANT CORRELATIONS BETWEEN PSYCHOLOGICAL MEASURES AND CLERICAL SCORES IS APPROXIMATELY THE SAME FOR BOTH SEXES. HOWEVER, SIGNIFICANT CORRELATIONS with four more of such tasks occurred for males than for females. Only one non-motor variable, Personal Failure Level Aspiration, correlated significantly with Clerical Unit scores for either sex. The greater number of significant correlations for males than for females between psychological and hand tool scores is because females were evaluated on only one of the six tasks in this group. The fine dexterity motor skills tests relate more uniformly with hand tool scores, than do the other psychological measures.

Although psychological measures appear to be highly related with Unit scores in the service category, the correlations are concentrated with one task rather than being general throughout the category. Of the total of 36 significant correlations, 23 were between psychological scores and score on making a bed. The psychological variables did not correlate with floor polishing scores of males or with setting a table or sweeping scores of females. The number of correlations between psychological variables and service tasks is greater for males than for females. There was less variation in girls' scores on the service tasks.

Psychological variables correlated significantly with 54 light industry scores for females and with 46 for males. However, there were no significant correlations with seven of the tasks for females and five for males. Psychological scores derived from motor skills tests appear preponderantly among the significant correlations; only two personality-temperament measures relate significantly with light industrial scores for each sex.

In correlations with prevocational ratings, psychological

TEST SCORES RELATED EVEN MORE DENSELY THAN WITH UNIT SCORES. FIFTY PER CENT OF THE TESTS CORRELATED SIGNIFICANTLY WITH UNIT RATINGS OF INDUSTRIOUSNESS, QUALITY AND QUANTITY OF WORK AND GENERAL ESTIMATE. IT WAS PRIMARILY THE MOTOR SKILLS SCORES WHICH WERE INVOLVED IN THE SIGNIFICANT CORRELATIONS. THE RATINGS WITH WHICH NONE OF THE TESTS CORRELATED SIGNIFICANTLY WERE PERSONAL HABITS AND MANNERS, ATTITUDES, PUNCTUALITY, ATTENDANCE, AND RELATIONSHIP TO SUPERVISORS.

THE DENSITY OF SIGNIFICANT CORRELATIONS WAS STILL GREATER IN THE MATRIX OF PSYCHOLOGICAL BATTERY SCORES WITH FIELD RATINGS. AGAIN IT WAS PRIMARILY THE MOTOR SKILLS VARIABLES WHICH WERE INVOLVED IN THE SIGNIFICANT CORRELATIONS. WITH ALL BUT TWO RATING VARIABLES, AT LEAST 10 OF 29 SIGNIFICANT R'S WERE OBTAINED. NO SIGNIFICANT CORRELATIONS WERE OBSERVED WITH RATING OF PUNCTUALITY AND BUT ONE WITH RATING OF ATTENDANCE.

THE FINDINGS MORE DIRECTLY CONCERNED WITH PREDICTIVE POTENTIAL OF THE PSYCHOLOGICAL TEST BATTERY INVOLVE CORRELATIONS BETWEEN VARIABLES OF THE BATTERY AND RATINGS IN TRAINING PHASES (APPENDIX C-12). ONLY RARELY DO AS MANY AS HALF OF THE VARIABLES PREDICT TO RATING ITEMS AT END OF PHASE II, THE STAGE OF TRAINING SUCCEEDING PREVOCATIONAL EVALUATION. NO RATING ITEM AT END OF PHASE III WAS PREDICTED BY MORE THAN ONE-FOURTH OF THE TEST SCORES. THE PSYCHOLOGICAL TEST BATTERY CORRELATED RELATIVELY WELL WITH JOB SKILL RATING ITEMS, MODESTLY WITH INTERPERSONAL RATINGS, AND POORLY WITH PERSONAL RATING ITEMS. THE PATTERN IS COMPARABLE, BUT WITH A LESSER INCIDENCE OF SIGNIFICANT R'S, IN CORRELATIONS BETWEEN PSYCHOLOGICAL BATTERY SCORES AND END OF PHASE III RATINGS. AS IN THE PREVOCATIONAL MATRICES, THE MOTOR TESTS ARE INVOLVED IN THE MAJORITY OF SIGNIFICANT PREDICTIONS OF RATINGS IN BOTH TRAINING PHASES. IN CONTRAST, HOWEVER, A NUMBER OF SIGNIFICANT CORRELATIONS BASED ON PERSONALITY-TEMPERAMENT SCORES BECOME EVIDENT IN THE TRAINING PHASES.

COMPUTATIONS OF CORRELATIONS BETWEEN PSYCHOLOGICAL BATTERY VARIABLES AND RATINGS FROM EMPLOYERS IN PHASE IV FAILED TO YIELD RESULTS OF SUFFICIENT MAGNITUDE TO BE CONSIDERED ACCEPTABLE FOR PREDICTIVE PURPOSES.

DISCUSSION

FOR EACH OF THE FOUR YEARS OF THIS STUDY, THE MEANS ON EACH OF THE MOTOR TESTS VARIED SO LITTLE, AND RELATIONSHIPS BETWEEN CHRONOLOGICAL AGE AND TEST SCORES WERE SO UNIFORMLY LOW, THAT IT APPEARS THAT SUBJECTS WERE EVALUATED AT OR BEYOND THE TIME MATURATIONAL INFLUENCE UPON THE PERFORMANCES MEASURED. TO THE EXTENT THAT DEVICES SUCH AS THOSE EMPLOYED IN THIS STUDY ARE USEFUL IN PREVOCATIONAL EVALUATION, THESE FINDINGS WOULD SUGGEST THE FEASIBILITY OF INITIATING SUCH EVALUATIONS WITH SUBJECTS AS YOUNG AS SIXTEEN YEARS OF AGE. IT WOULD BE DESIRABLE ALSO TO EXTEND INVESTIGATION INTO THE APPLICABILITY OF THESE MEASURES WITH YOUNGER POPULATIONS OF RETARDATES. SHOULD IT BE FOUND THAT STABILIZATION OF PERFORMANCES OCCURS AT AN APPRECIABLY EARLIER AGE, THIS WOULD PROVIDE A USEFUL GUIDE FOR INITIATING VOCATIONAL PLANNING AND TRAINING WITH YOUNGER CLIENTS THAN COMMONLY RECEIVE SUCH SERVICES TODAY.

THE FINDINGS WITH REGARD TO MOTOR TEST SCORES HAVE A FURTHER BEARING UPON PREVOCATIONAL EVALUATION PRACTICES. THAT A HIGH DEGREE OF CONFIDENCE MAY BE PLACED IN THE STABILITY OF SUCH

SCORES IS CONFIRMED BY THE UNIFORMLY HIGH RELIABILITY CORRELATIONS FOR ALL SUCH MEASURES EMPLOYED IN THIS STUDY. ENCOURAGINGLY, THERE IS LITTLE LOSS IN MAGNITUDE OF RELIABILITY COEFFICIENTS OVER A THREE YEAR PERIOD. IT WOULD SEEM, THEREFORE, THERE WOULD BE VIRTUALLY NO ADVANTAGE TO BE GAINED FROM REPEATED EVALUATION IF THE INITIAL ASSESSMENT IS COMPETENTLY ADMINISTERED.

GOOD LONG-TERM RELIABILITY WAS EVIDENT ALSO FOR THE MEASURE OF INTELLIGENCE EMPLOYED. HOWEVER, RELIABILITY COEFFICIENTS OF THE PERSONALITY-TEMPERAMENT MEASURES GENERALLY DID NOT ACHIEVE STATISTICAL SIGNIFICANCE WHEN TEST-RETEST SPAN WAS GREATER THAN ONE YEAR. IN VIEW OF THE GOOD RELIABILITY OF THESE MEASURES OVER A RELATIVELY SHORTER TIME PERIOD, IT DOES NOT APPEAR LIKELY THAT RELIABILITY FAILURE OVER LONGER PERIODS OF TIME IS DUE TO INHERENT WEAKNESSES OF THE TESTS. A MORE LIKELY EXPLANATION WOULD APPEAR TO BE THAT SUBJECTS CHANGE SLOWLY BUT MEASURABLY IN THE CHARACTERISTICS WHICH WERE ASSESSED. THE DATA OF THE PRESENT STUDY DO NOT PERMIT IDENTIFICATION OF FACTORS WHICH MAY BE ASSOCIATED WITH OR CONTRIBUTE TO SUCH CHANGE. IN ANY EVENT, IT APPEARS OBVIOUS THAT THERE CAN BE LESS CONFIDENCE IN THE ACCURACY OF LONG-RANGE PREDICTION OF PERSONALITY AND TEMPERAMENT CHARACTERISTICS THAN OF MOTOR PERFORMANCES. IF PERSONALITY AND TEMPERAMENT ATTRIBUTES ARE CRUCIAL IN PLANNING THE TRAINING AND PLACEMENT OF A RETARDED INDIVIDUAL, IT WOULD APPEAR ADVISABLE TO RE-ADMINISTER APPROPRIATE TESTS IF AVAILABLE RESULTS ARE TWO OR MORE YEARS OLD.

AS HAS BEEN SUGGESTED BY THE FINDINGS OF OTHER INVESTIGATORS (FERGUSON, 1958; CANTOR AND STACEY, 1951; MALPASS, 1960), AVAILABLE NORMS OF STANDARDIZED MOTOR TESTS ARE OF LITTLE IMMEDIATE USE WITH RETARDED SUBJECTS. ON THE MOTOR TESTS

SUBJECTS IN THE PRESENT SAMPLE DIFFERED FROM NORMAL GROUPS IN TWO RESPECTS. THEIR MEAN SCORES WERE CONSIDERABLY LOWER THAN FIRST QUARTILE OF NORMS, AND IN MOST CASES WERE LOWER THAN FIRST CENTILE; ON NONE OF THE TESTS WERE THERE SIGNIFICANT DIFFERENCES BETWEEN MEANS OF MALES AND FEMALES. ALTHOUGH LITERATURE TENDS TO SUGGEST THAT SUCH POOR PERFORMANCE BY RETARDATES IS A REFLECTION OF INHERENT DEFICIT, AN EARLIER REPORT STEMMING FROM THIS PROJECT (KAHN AND BURDETT, 1962), SUGGESTS RATHER THAT IT IS ASSOCIATED WITH THE PHENOMENON OF DIFFICULTY IN ADAPTATION, AND THAT IF GIVEN OPPORTUNITY FOR PRACTICE RETARDATES ARE CAPABLE OF ACHIEVING LEVELS OF PERFORMANCE IN SUCH TASKS COMPARABLE WITH THOSE OF PERSONS OF NORMAL INTELLIGENCE.

APPARENTLY, THE MOST TENABLE EXPLANATION FOR THE FAILURE TO FIND SEX DIFFERENCES ON ANY OF THE STANDARDIZED MOTOR TESTS IS THAT RETARDATES EITHER HAVE NOT BEEN SUBJECTED TO OR HAVE NOT INCORPORATED SEX DIFFERENTIATING CULTURAL STANDARDS. IF SUCH SHOULD BE THE CASE, IT IS NOT CLEAR WHETHER, IN VOCATIONAL TRAINING OF RETARDATES, MORE IS TO BE GAINED BY IGNORING OR BY ATTEMPTING TO INFLUENCE THE ACQUISITION OF THESE STANDARDS.

FOR BOTH MALES AND FEMALES, ALMOST ALL OF THE INTERCORRELATIONS AMONG MOTOR TESTS WERE STATISTICALLY SIGNIFICANT, WITH THE VALUES EXTENDING FROM MODERATE TO HIGH MAGNITUDES. ALTHOUGH THERE WERE SIGNIFICANT CORRELATIONS AMONG PERSONALITY-TEMPERAMENT MEASURES, PRACTICALLY NONE OF THESE CORRELATED SIGNIFICANTLY WITH MOTOR SCORES, NOR DID SIGNIFICANT RELATIONSHIPS OCCUR BETWEEN EITHER AGE OR INTELLIGENCE SCORE AND MOTOR TEST SCORES. THE APPARENT CONCLUSION IS THAT THE MOTOR SKILLS ARE RELATIVELY INDEPENDENT OF PERSONALITY- TEMPERAMENT MEASURES AND OF MATURATIONAL AND INTELLECTUAL CHAR-

ACTERISTICS, AT LEAST WITHIN THE LIMITS THAT THESE VARIABLES WERE REPRESENTED IN THE SAMPLE STUDIED. IT IS EQUALLY APPARENT FROM THE RANGE IN MAGNITUDE OF THE MOTOR TEST INTERCORRELATIONS, THAT THERE IS HIGH PROBABILITY OF ISOLATING AND IDENTIFYING ONE OR MORE DEFINITIVE MOTOR SKILL FACTORS IN RETARDATES. NONE OF THE TESTS EMPLOYED CAN BE REASONABLY DESCRIBED AS A PURE MEASURE OF MOTOR FUNCTION; INVOLVED IN PERFORMANCE ARE SUCH FUNCTIONS AS VISUAL DISCRIMINATION, JUDGMENT, OR TRANSFER OF TRAINING. THEREFORE, NEW TESTS DESIGNED ON THE BASIS OF FACTORIAL ANALYSES MIGHT WELL RESULT NOT ONLY IN ECONOMIES IN EVALUATION BUT ALSO IN APPRECIABLE IMPROVEMENTS IN PREDICTIVE EFFICACY.

THE FINDINGS OF THIS STUDY PERTAINING TO THE EXTENT OF AGREEMENT BETWEEN PSYCHOLOGICAL SCORES AND PREVOCATIONAL UNIT AND FIELD EVALUATIONS HAS IMPORT FOR THE RELATIVE CONTRIBUTION OF EACH APPROACH TO EVALUATION. DEGREE OF AGREEMENT IS PROGRESSIVELY GREATER BETWEEN THE PSYCHOLOGICAL BATTERY AND THE THREE SETS OF PREVOCATIONAL MEASURES IN THE ORDER: UNIT SCORES, UNIT RATINGS, AND FIELD RATINGS. NONE OF THE SETS OF MEASURES ARE COMPLETELY INDEPENDENT. EVEN WHERE THERE WAS LEAST AGREEMENT, BETWEEN PSYCHOLOGICAL AND UNIT SCORES, APPROXIMATELY ONE-SEVENTH OF THE CORRELATIONS IN THE MATRIX ARE HIGHLY STATISTICALLY SIGNIFICANT. THE CONCENTRATION OF AGREEMENTS GENERALLY INCLUDED MOTOR SKILLS VARIABLES FROM THE PSYCHOLOGICAL TEST BATTERY AND LIGHT INDUSTRY SCORES IN UNIT TASKS, AND THE SAME PSYCHOLOGICAL VARIABLES WITH RATINGS IN JOB SKILL ITEMS OBTAINED IN UNIT AND FIELD EVALUATIONS. THE PSYCHOLOGICAL TESTS CORRELATED SIGNIFICANTLY WITH PERSONAL AND INTERPERSONAL CHARACTERISTICS IN GREATER FREQUENCY WITH FIELD THAN WITH UNIT RATINGS. THE GENERAL TREND IN THESE FINDINGS SUGGESTS AN APPROACH TO ADVANCING PREVOCATIONAL EVALUATION

PROCEDURES. WHEN LIKE INFORMATION IS OBTAINED FROM MORE THAN ONE PROCEDURE IT WOULD APPEAR LOGICAL TO REDUCE DUPLICATION. THE ONE TO BE RETAINED SHOULD BE THAT WHICH PRODUCES THE INFORMATION WITH LEAST TIME AND EFFORT. IT WOULD HAVE TO MEET ALSO THE TEST OF PREDICTIVE POTENCY. THE LATTER TEST WOULD HAVE TO BE MET ALSO BY PROCEDURES WHICH YIELD MEASURES WHICH ARE NOT OTHERWISE OBTAINED. THE PRESENT STUDY GIVES REASON TO EXPECT THAT THERE MAY BE EXTRACTED FROM THE PSYCHOLOGICAL BATTERY EMPLOYED, BOTH MEASURES WHICH WOULD BE ECONOMICAL SUBSTITUTES FOR LENGTHIER PROCEDURES, AND SOME MEASURES WHICH WOULD SUPPLEMENT PRESENT PREVOCATIONAL EVALUATION PROCEDURES.

THE RELATIONSHIP, NOTED ABOVE, BETWEEN PSYCHOLOGICAL BATTERY VARIABLES AND PREVOCATIONAL FIELD RATINGS WAS NOT ANTICIPATED IN VIEW OF THE DISPARITY OF THE CONDITIONS CHARACTERIZING THE TWO PROCEDURES. FIELD CORRELATIONS CLEARLY WERE OBTAINED IN SITUATIONS CLOSELY RESEMBLING ACTUAL EMPLOYMENT; THE PSYCHOLOGICAL TESTS JUST AS OBVIOUSLY WERE RADICALLY UNLIKE WORK SITUATIONS IN THAT THEY INVOLVED PERFORMANCE ISOLATED FROM JOB CONTEXT. THIS FINDING APPARENTLY DENIES THE AXIOM THAT PREDICTION IS DIRECTLY RELATED TO DEGREE OF SIMILARITY BETWEEN PREDICTOR AND CRITERION. BECAUSE THIS FINDING MAY BE AN ARTIFACT OF THIS STUDY, DUE TO UNIDENTIFIABLE CONDITIONS, FURTHER INVESTIGATION WOULD APPEAR ADVISABLE.

TO SOME EXTENT, THE PRESENT STUDY INCLUDED INVESTIGATION OF THE EMPLOYMENT OF PSYCHOLOGICAL MEASURES AS PREDICTORS OF PERFORMANCE AND ADJUSTMENT IN VOCATIONAL TRAINING AND JOB SITUATIONS. IT IS EVIDENT THAT THE PSYCHOLOGICAL BATTERY, PARTICULARLY SOME SPECIFIC TESTS, ARE CAPABLE OF A LIMITED DEGREE OF PREDICTION TO SUCH SITUATIONS. IN THE TRAINING PHASES, ONE-FOURTH OF THE POSSIBLE CORRELATIONS between the battery and ratings at the end of Phase II were significant; by the end of Phase III the proportion had dropped to about 10%. However, in each Phase, the psychological battery predicted in some degree to almost all of the performance and adjustment items. Although not presented as part of the findings, correlations were obtained between psychological tests and ratings from the beginnings of Phases II and III. There were markedly fewer significant correlations in these matrices than in those based on the battery with ratings at endings of the respective phases. Complete loss of predictive efficiency occurred when ratings in community employment served as criteria.

There does not appear to be a basis for an unequivocal or unqualified statement regarding the predictive efficacy of psychological tests. Prediction appears to be dependent upon a number of conditions, such as the span of time between predictor and criterion, the nature of the predictor as well as of the criterion, orientation of the evaluators, the relative discontinuity of stages in vocational development, and disparities among situations in which criteria are applied.

SUMMARY

Eleven psychological tests, including measures of motor skills, personality-temperament, and intelligence, were administered annually to subjects in the vocational training program. Obtained results were used to determine reliabilities of the measures, relationships with measures obtained in other techniques of prevocational evaluation, and potential for prediction of vocational training and

ADJUSTMENT. HIGH RELIABILITIES WERE OBTAINED, PARTICULARLY FOR THE MEASURES OF MOTOR SKILLS. VARYING DEGREES OF RELATIONSHIP WITH OTHER PREVOCATIONAL MEASURES WERE OBSERVED. PREDICTIVE EFFICIENCY WAS FOUND TO VARY WITH TIME AND OTHER FACTORS IN THE VOCATIONAL PROGRAM. THE IMPORT OF FINDINGS, BOTH FOR PRACTICE AND RESEARCH ARE DISCUSSED.

Chapter 5

VOCATIONAL INTEREST AND SOPHISTICATION ASSESSMENT

Joseph J. Parnicky

Harris Kahn

Arthur Burdett

Various studies concerned with the vocational adjustment of educable mentally retarded have pointed out that work interests, habits, motivation and understanding of job requirements are far more critical variables than their specific job capacities and skills (Abel, 1940, Michael-Smith, 1950; Martzler, 1951; Cohen, 1960; Windle, 1961). The unskilled and semi-skilled jobs in which the mentally retarded are most frequently engaged require less in the way of specific skills and knowledge and more in the way of general appreciation of employers' expectations of workers, ability to get along with fellow employees, and a positive interest in the job area.

It is, therefore, derivable that a psychological test could be used to evaluate the extent of a retarded individual's interest in and understanding of particular job areas. If demonstrated to be a valid predictor of job success for mental retarded individuals, this technique could complement the more extensive prevocational workshop evaluation procedures which place heavy stress on appraisal of skills and capacity.

Standard vocational interest tests are not applicable to retarded subjects. Instruments such as the Strong Vocational Interest (1951) and the Kuder Preference Record (1951) require reading ability and comprehension far beyond that achieved by the mildly retarded. Moreover they concentrate on job areas and levels for which the retarded cannot realistically aspire.

There are a few picture tests of vocational interest on the market such as the Vocational Apperception Test (Ammons, et. al., 1949) and the Picture Interest Inventory (Geist, 1959). Although these instruments circumvent the reading requirement, they are not appropriate for use with mentally retarded subjects. Like the instruments mentioned before, they include many job areas far beyond the retarded's vocational reach.

One effort to develop a suitable test in this area has been made by Urich (1960). Available reports indicate that standardization of his Picture Inventory of Semi-Skilled jobs has not been carried to a point which would permit confidence in it's use for individual prediction (Urich, 1961).

For purposes of vocational prediction there remains a need for an objective test which would: (a) be reading-free; (b) have appropriate content for retardates; (c) differentiate subject's vocational interests; and, in addition (d) permit evaluation of retardate's knowledge of job conditions. To meet these objectives the development of the Vocational Interest and Sophistication Assessment (VISA) was undertaken. Vocational interest is defined as the degree to which an individual is favorably inclined toward performing the tasks involved in a particular occupational category. Vocational sophistication is defined as the extent to which an individual understands the conditions which pertain when one is engaged in a particular occupational category. The conditions that may influence the individual's interest may be other than the job task itself. Therefore, the instrument required was believed to be one that could cover a range of specific occupations, but also such general variables as working alone or in a group; being supervised or unsupervised; working outdoors or indoors; doing heavy or light work; and working with the same sex or with the opposite sex.

In developing the VISA to meet these specifications, earliest considerations were focused on what job areas should be covered. The basic guiding principle in selecting the set of tasks was that each should be representative of feasible areas of employment for mildly retarded young men and women. Toward this end a survey was made of the jobs which students of Johnstone have filled in the community. The staff of the Center most directly involved in vocational training was asked to give it's ideas pertaining to this question. Personnel of other State institutions and the New Jersey Rehabilitation Commission were contacted for such information. This was supplemented with a survey of the literature (Key et al, 1932; Cookley, 1945; Legg, 1947; McIntosh, 1949; DiMichael, 1950; Hartzler, 1953; Harold, E.C., 1955; Saenger, 1957). Based on these sources, the following selection was made for each sex:

Males	Females
Business-Clerical	Business-Clerical
Construction-Maintenance	Food Service
Farm-Grounds	Housekeeping
Food Service	Industrial
Garage	Laundry
Industrial	
Laundry	

As to the form best suited for the intended purposes, it was recognized that the test would have to be pictorial in order to avoid having results influenced by the reading level of subjects. Initially, the project staff favored using two sets of photographs, one depicting a male model and the other a female model doing the selected tasks. Correspondence with test developers who had tried the photographic technique raised sufficient questions so that a decision was made to use the alternate approach, namely having pictures drawn of the tasks by an artist. The criteria for the drawings were: a) that each picture portray but a single task; b) that the task protrayed be clearly indicated; c) that the model worker have the same set of characteristics in each of the pictures, but none should show the facial features.

After several series of sketches using various styles were drawn, a set of 21 pictures were selected and presented to a random sample of non-institutionalized mental retardates in a community workshop program. The results indicated need for considerable revision. It was evident that the pictures had too much extraneous material and were too am-

BIGUOUS FOR RETARDED SUBJECTS. THE DRAWINGS WENT THROUGH SEVERAL STAGES OF REVISION, AND WERE THEN TRIED ON ANOTHER SAMPLE OF ADOLESCENT RETARDATES. AS A RESULT OF THIS PROCEDURE, 48 PICTURES WERE DESIGNED FOR MALE SUBJECTS AND 34 PICTURES FOR FEMALES COVERING THE JOB AREAS INDICATED PREVIOUSLY. EACH PORTRAYED THE WORKER DOING THE PARTICULAR TASK ALONE.

IN THE ORIGINAL DESIGN IT WAS BELIEVED THAT ONE PRESENTATION OF THE VISA PICTURES WOULD BE SUFFICIENT TO ESTABLISH IT'S POTENTIAL AS A USEFUL MEASURING DEVICE. HOWEVER, IN CONSULTATION WITH THE EDUCATIONAL TESTING SERVICE IT WAS DETERMINED THAT STATISTICALLY THE INSTRUMENT WOULD BE BETTER ESTABLISHED IF SUCCESSIVE SAMPLING RUNS WERE ARRANGED. THE FIRST RUN WAS TO INVESTIGATE THE INFLUENCE OF JOB FAMILIES PER SE ON THE INTEREST OF RETARDATES, ALONG WITH TWO OF THE GENERAL VARIABLES, I.E., OUTDOOR VS. INDOOR WORK AND HEAVY VS. LIGHT WORK. THE SECOND STAGE WAS TO EXPLORE THE INFLUENCE OF ADDITIONAL VARIABLES SUCH AS THE PRESENCE OF CO-WORKERS AND SUPERVISORS. SINCE THE STUDY PROJECTED USING JOHNSTONE STUDENTS FOR LATER VALIDATION RESEARCH OTHER INSTITUTIONS IN NEARBY STATES WITH ADOLESCENT, MILDLY RETARDED POPULATIONS WERE APPROACHED TO SECURE SUFFICIENT NUMBER OF SUBJECTS FOR STATISTICAL REQUIREMENT.

FOR THE FIRST TRIAL RUN THE PICTURES WERE ARRANGED BY RANDOM ORDERING, WITH THE ADDED PROVISION THAT NO TWO PICTURES OF THE SAME JOB FAMILY WERE TO REMAIN IN CONSECUTIVE ORDER. IN ADDITION AN EXPERIMENTAL FORM OF AN INQUIRY WAS PREPARED TO ASSESS WORK SOPHISTICATION. THROUGH THE COOPERATION OF SIX INSTITUTIONS, THIS FORM OF THE TEST WAS ADMINISTERED TO 261 MALES AND 209 FEMALES WHO WERE SIMILAR IN CHARACTERISTICS TO JOHNSTONE POPULATION, I.E. AGE, MENTAL LEVEL AND ABSENCE

SERIOUSLY HANDICAPPING PHYSICAL CONDITIONS.

THE OBTAINED INTEREST RESPONSES WERE SUBJECTED TO VARIMAX FACTOR ANALYSIS. AFTER ORTHOGONAL ROTATION, THE DATA SHOWED LOADINGS CLOSELY SIMILAR TO THOSE WHICH HAD BEEN PREDICTED. ONLY ONE ANTICIPATED JOB AREA FOR EACH OF THE SEXES DID NOT HAVE SUFFICIENT LOADINGS TO WARRANT RETENTION. IN THE MALE SERIES THIS WAS THE BUSINESS-CLERICAL; AND IN THE FEMALE, THE INDUSTRIAL. TWO OTHER FACTORS WERE EXTRACTED WHICH DID NOT CORRELATE WITH ANY JOB AREAS PREVIOUSLY OUTLINED. THESE ARE NOT INCLUDED IN THE FINDINGS AND DISCUSSIONS SINCE THEY DO NOT CONFORM TO ANY RECOGNIZABLE VOCATIONAL PATTERN. SUBJECT'S PREFERENCES DID NOT APPEAR TO BE SIGNIFICANTLY INFLUENCED BY THE INDOOR-OUTDOOR OR HEAVY-LIGHT VARIABLES IN THE PICTURES. AS FOR THE INQUIRY EXAMINATION OF RESPONSES INDICATED IT WAS TOO LENGTHY AND A NUMBER OF ITEMS WERE EITHER AMBIGUOUS OR NON-DISCRIMINATORY.

THE SECOND VERSION OF THE TEST CONSISTED OF A REVISED INQUIRY AND PICTURE SERIES. PICTURES WITH LOW LOADINGS HAD BEEN ELIMINATED. NEW PICTURES WERE ADDED DEPICTING SOCIAL VARIABLES SUCH AS PRESENCE OF MALE AND FEMALE CO-WORKERS AND SUPERVISORS. THIS INCREASED THE PICTURES TO 75 IN THE MALE SERIES AND 53 IN THE FEMALE. THIS VERSION OF THE TEST WAS GIVEN TO 179 MALES AND 164 FEMALES, SELECTED FROM FOUR OF THE ORIGINAL INSTITUTIONS. EIGHTY-FIVE PER CENT OF THE SUBJECTS HAD BEEN TESTED ALSO IN THE FIRST RUN.

WHEN FACTOR ANALYSIS WAS APPLIED TO THE DATA OBTAINED IN THE SECOND RUN, THE SOCIAL VARIABLES FAILED TO EMERGE AS SIGNIFICANT FACTORS. HOWEVER, THEIR INCLUSION SERVED TO POTENTIATE THE FACTORS SECURED IN THE FIRST RUN. THEREFORE EACH OF THE SERIES OF PICTURES WAS RETAINED INTACT FOR FURther study. The revised inquiry underwent slight additional modification and a scoring system for it was developed (Appendices D-1, D-2).

Not until the techniques' discriminative efficiency had been established could the VISA be used on the project sample at Johnstone in validation studies. The time required by the extensive procedures outlined earlier precluded testing its predictive potential until the fourth year of the study. During that year it was administered to 193 Johnstone students, (119 males; 74 females) as a first step in establishing its validity.

Within the remaining project time, it was only possible to determine relationships between Prevocational Unit data and the VISA interest clusterings. This restricted the sample to 48 male students and 28 female students. At this stage of the development, the interest and sophistication data were necessarily handled as simple sums. Weighting of scores will require more extensive validation. A correlation matrix was derived, and the means of correlations between the VISA clusters and of the Prevocational task groupings were computed.

FINDINGS

Factor loadings obtained on the second trial run proved to be 50 or higher for 68 out of 75 items on the male form (Appendix D-3) and 52 out of 53 items on the female form (Appendix D-4). Moreover, the configuration of factor loadings within each series of pictures was remarkably identical with the clusters which were predicted a priori and which were obtained from the first trial run. The loadings from the second administration on all the items retained from the first pilot trial were at least equal in magnitude and remained in the same clusters which had been found originally.

There was close correspondence in the magnitude of loading of each pairs of items consisting of one in which the individual is depicted alone and its associated item depicting the individual with others in a similar working situation. In addition, the correlations between paired items were high; however, because these correlations did not achieve unit, it may be inferred that each item in a pair makes a slight independent contribution to the measurement of interest.

When the above findings are related to the fact that approximately 85% of the subjects to whom the first version of the VISA, (i.e., consisting of items depicting the worker alone) was administered also served as subjects for the second pilot trial, some measure of the instrument's reliability may be inferred. Further evidence of reliability is proved by the high correlations between the associated pairs of items.

Neither the correlations between VISA clusters and individual prevocational Unit scores, nor between VISA interest clusters and occupationally grouped prevocational Unit scores were statistically significant (Appendix D-5).

DISCUSSION

Factorial analysis of data collected in two extensive samplings clearly indicated that vocational preferences of mental retardates can be discriminated through the admin-

ISTRATION OF A TEST CONSISTING OF A SERIES OF PICTURES OF VARIOUS WORK SITUATIONS. IN THE EXPLORATORY STANDARDIZATION PROCEDURES, ALMOST ALL OF THE ANTICIPATED JOB CLUSTERS WERE FOUND. HOWEVER, OTHER VARIABLES HYPOTHESIZED AN INFLUENTIAL IN VOCATIONAL INTEREST FAILED TO EMERGE. IN THE INITIAL PILOT TRIALS, NEITHER HEAVY-LIGHT NOR INDOOR-OUTDOOR VARIABLES DEVELOPED AS FACTORS. IN THE SECOND PILOT TRIAL, SOCIAL VARIABLES, INTRODUCED THROUGH THE INCLUSION OF CO-WORKERS OR SUPERVISORS IN THE PICTURES, DID NOT APPEAR AS FACTORS, ALTHOUGH THEY APPARENTLY SERVED TO POTENTIATE THE LOADINGS IN CLUSTERS ORIGINALLY OBSERVED. IT WOULD APPEAR REASONABLE TO ASSUME THAT IN JOB PREFERENCE RETARDATES WOULD BE SWAYED BY INTERPERSONAL CONDITIONS. THAT THEY DID NOT APPEAR TO BE INFLUENCED BY SUCH CONDITIONS PROBABLY IS BECAUSE THEY PERCEIVED THE USUAL SOCIAL CONDITIONS OF A JOB SITUATION EVEN WHEN THESE WERE NOT PART OF THE PRESENTED STIMULUS. SOME SUPPORT OF THIS ASSUMPTION IS AVAILABLE FROM THE RESPONSES OBTAINED TO THE INQUIRY IN BOTH OF THE PILOT RUNS. THE ITEMS OF THE INQUIRY WERE PRESENTED ONLY WITH PICTURES IN WHICH A SINGLE INDIVIDUAL IS SHOWN, AND THE INQUIRY WAS CONDUCTED AS THE FIRST STAGE OF THE TESTING ROUTINE. UNDER SUCH CONDITIONS SUBJECTS RESPONDED REALISTICALLY TO QUESTIONS CONCERNING THE LIKELY PRESENCE OF CO-WORKERS OR SUPERVISORS IN THE DEPICTED JOB SITUATIONS. THE PERCENTAGE OF CORRECT RESPONSES WAS SO HIGH THAT SUCH ITEMS WERE NON-DISCRIMINATORY AND HAD TO BE EITHER MODIFIED OR ELIMINATED FROM SUBSEQUENT VERSIONS OF THE INQUIRY.

BOTH BECAUSE THE FACTOR LOADINGS WERE SIMILAR IN THE TWO PILOT TRIALS AND BECAUSE THE INTRODUCTION OF ADDITIONAL PERSONS NEITHER MODIFIED THE ARRAY OF CLUSTERS NOR RESULTED IN THE EMERGENCE OF ANTICIPATED SOCIAL VARIABLE FACTORS, IT APPEARS THAT THE PRINCIPLE INFLUENCE IN THE RETARDATE'S

EXPRESSED PREFERENCES IS HIS PERCEPTION OF THE JOB ITSELF. THE PERCEPTION PROBABLY INCLUDES AN IMPLICIT RECOGNITION OF THE OVERALL CONDITIONS INVOLVED IN A JOB SITUATION, INCLUDING THE SOCIAL VARIABLES AS REFERRED TO ABOVE. AT LEAST INSOFAR AS PREFERENCE IS INDICATED BY RESPONSE TO THE SYMBOLIC STIMULUS OF THE PICTURE, RETARDATES APPARENTLY ARE RESPONDING PRIMARILY TO THE TASK PICTURED.

EVIDENCE OF RELIABILITY OF VOCATIONAL INTEREST ASSESSMENT APPEARS TO BE SUFFICIENTLY PROMISING TO WARRANT EFFORTS AT FURTHER DEVELOPMENT OF THE VISA. A COROLLARY INTERPRETATION OF THE EVIDENCE OF RELIABILITY IS THAT, FOR THE POPULATION SAMPLED, STABILIZATION OF INTERESTS SEEMS TO HAVE BEEN ESTABLISHED. IT SHOULD BE NOTED THAT THE SAMPLE WAS DRAWN FROM INSTITUTIONAL POPULATIONS, THAT THE AGE RANGE WAS FROM 16 TO 22, AND THAT NO ANALYSIS WAS MADE OF THE RELATIONSHIP BETWEEN AGE AND INTEREST RESPONSES. IT WOULD APPEAR PARTICULARLY IMPORTANT, IN FURTHER DEVELOPMENT OF THE INSTRUMENT, TO DETERMINE WHETHER THE APPARENT INTEREST STABILITY ALSO OBTAINS IN NON-INSTITUTIONALIZED RETARDATES AND AT WHAT AGE STABILIZATION OCCURS. DETERMINATION OF THE LATTER COULD HAVE ESPECIAL SIGNIFICANCE IN VOCATIONAL GUIDANCE, BY PROVIDING THE COUNSELOR WITH GUIDELINES FOR BOTH SELECTION AND TIME OF INITIATION OF TRAINING PROGRAMS FOR RETARDATES. DETERMING THE SUITABILITY OF THE VISA FOR USE WITH NON-INSTITUTIONALIZED SUBJECTS IS OF PRIME IMPORTANCE, SINCE THE MAJORITY OF RETARDATES ARE RETAINED IN THE COMMUNITY THROUGHOUT THEIR LIVES.

IN AN EXPLORATORY VALIDATING PROCEDURE, CORRELATIONS BETWEEN RESPONSES ON THE VISA AND PREVOCATIONAL WORKSAMPLE SCORES FOR PART OF THE SAMPLE OF THE PRESENT PROJECT WERE OBTAINED. IT WAS OBSERVED THAT VISA SCORES WERE INDEPEN-

DENT OF WORKSAMPLE SCORES BOTH AS INDIVIDUAL AND AS GROUPED VARIABLES. THERE APPEAR TO BE SEVERAL REASONS FOR THE LACK OF SIGNIFICANT CORRELATIONS. VISA SCORES WERE ENTERED INTO THE CORRELATIONS AS SIMPLE SUMS RATHER THAN DIFFERENTIAL WEIGHTINGS AND THERE WAS A LACK OF PARALLELISM BETWEEN VISA CLUSTERS AND WORKSAMPLE GROUPS. FURTHERMORE, INDEPENDENCE OF THE VARIABLES MAY BE BECAUSE THE PREVOCATIONAL UNIT SCORES WERE BASED UPON PERFORMANCE IN THE FIRST ADMINISTRATION. UNDER SUCH PROCEDURE, THE OPPORTUNITY FOR INTEREST TO BE REFLECTED IN PERFORMANCE WAS UNLIKELY. THERE IS NO REASON TO BELIEVE THAT DIFFERENT TECHNIQUES FOR TREATMENT OF SCORES WOULD HAVE PRODUCED A LARGER NUMBER OF SIGNIFICANT CORRELATIONS BETWEEN THE SETS OF VARIABLES. SOME INDEPENDENCE OF VOCATIONAL INTEREST AND WORK SKILL IS BASIC TO THE RATIONALE OF THE VISA. IT IS HYPOTHESIZED, HOWEVER, THAT VOCATIONAL INTEREST SCORES WILL HAVE SOME EFFICIENCY IN DIFFERENTIAL PREDICTION OF VOCATIONAL PERFORMANCE AND ADJUSTMENT, GIVEN SUFFICIENT PERIOD OF TRIAL IN VARIOUS WORK SITUATIONS AS THE BASIS OF CRITERION. MORE EXTENSIVE AND SOPHISTICATED VALIDATION PROCEDURES THAN WERE FEASIBLE WITHIN THE SCOPE OF THE PRESENT STUDY WILL BE NECESSARY TO ESTABLISH ITS VALIDITY.*

THE DISCRIMINATIVE EFFICIENCY APPARENT IN SUCCESSIVE PILOT TRIALS SUGGESTS THAT THE VISA IS A PROMISING DEVICE FOR USE IN VOCATIONAL EVALUATION OF RETARDATES. PRIOR TO ITS ADOPTION FOR USE IN INDIVIDUAL COUNSELING AND TRAINING, VALIDITY SHOULD BE ESTABLISHED BY MEANS OF PROCEDURES WHICH INVOLVE MORE DIRECT EVIDENCE OF INTEREST THAN IS AVAILABLE

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*UNDER SUPPORT OF VRA PROJECT 1221 FURTHER DEVELOPMENT OF THE VISA WAS INITIATED AT THE JOHNSTONE TRAINING AND RESEARCH CENTER IN JULY, 1963.

FROM APPRAISAL OF JOB PERFORMANCE ALONE. FOR EXAMPLE, CRITERIA FOR VALIDITY MIGHT BE JOB TENURE, EMPLOYEE'S SATISFACTION, AND EMPLOYER'S EVALUATION OF THE EMPLOYEE'S ENTHUSIASM, MOTIVATION, AND CONTENTMENT. IT IS ANTICIPATED THAT, IF DEVELOPED TO ITS FULL POTENTIAL, THE VISA WILL BE A USEFUL COMPLEMENT IN PREVOCATIONAL EVALUATION BY PROVIDING THE COUNSELOR WITH A TECHNIQUE WHICH WILL PERMIT HIM TO EXPLORE SYSTEMATICALLY THE TRAINEE'S VOCATIONAL INTERESTS, AND KNOWLEDGE OF JOB REQUIREMENTS AND CONDITIONS.

FOR THE FURTHER DEVELOPMENT OF THE VISA, DETERMINATION SHOULD BE MADE OF WHETHER IQ LIMITS ARE RELATED TO VOCATIONAL INTEREST PATTERNING OR STABILIZATION. IN ADDITION, THE RELATIONSHIP BETWEEN JOB KNOWLEDGE OR SOPHISTICATION AND INTEREST PATTERN SHOULD BE EXPLORED FULLY. IT APPEARS LIKELY THAT, IN THE ABSENCE OF REALISTIC KNOWLEDGE OF JOB REQUIREMENTS AND CONDITIONS, VOCATIONAL INTERESTS ARE POORLY GROUNDED AND TENUOUS. LACK OF INFORMATION CAN BE OVERCOME THROUGH APPROPRIATE TRAINING. FURTHER STANDARDIZATION OF THE SOPHISTICATION ASPECT OF THE VISA SHOULD PROVIDE A BASIS FOR DETERMINING WHETHER RETARDED TRAINEES SHOULD RECEIVE, AS PART OF THE VOCATIONAL TRAINING PROGRAM, INFORMATION BEYOND THAT WHICH THEY POSSESS. RELEVANT INFORMATION, INTERESTS, AND SKILLS MAY BE CONSIDERED A FUNDAMENTAL TRIAD IN JOB SUCCESS AND ADJUSTMENT.

SUMMARY

THE PROJECT INCLUDED A SERIES OF DESIGN AND PRELIMINARY STANDARDIZATION STEPS IN THE DEVELOPMENT OF A READING-FREE DEVICE FOR THE MEASUREMENT OF VOCATIONAL INTERESTS OF EDUCABLE, ADOLESCENT MENTAL RETARDATES. ON THE BASIS OF TWO EXTENSIVE TRIAL RUNS AND FACTOR ANALYSIS, MALE AND FEMALE

FORMS OF A PICTURE TEST WERE DEVELOPED TO THE POINT OF ESTABLISHING ITS ABILITY TO DISCRIMINATE RETARDATES' VOCATIONAL INTERESTS. PROCEDURE FOR FURTHER DETERMINATION OF THE INSTRUMENT'S RELIABILITY, VALIDITY AND RANGE OF USEFULNESS ARE DISCUSSED.

Part III

DEVELOPING THE VOCATIONAL POTENTIAL

Chapter 6: Vocational Training

Chapter 7: Group Counseling

Chapter 8: Special Work Group

Chapter 9: Vocational Placement

Chapter 6

VOCATIONAL TRAINING

Neale L. Peterson

Joseph J. Parnicky

On-the-job training in the institutional setting appears to be as old as institutions themselves, but the purposes and goals of such training have been undergoing change (Fernald, 1893; Davies, 1959; President's Panel, 1962). In the days when commitment to an institution was usually for life-long, custodial care, those retardates capable of working were trained so they might contribute to the operation of the particular institution. With the emerging realization that many retardates can maintain themselves in the community there have been concomitant modifications in institutional services. One evidence of this has been the reorienting of institutional vocational programs toward the return of the resident to the community prepared for gainful employment. (Fernald, 1919; Storrs, 1929; Channing, 1932; Abel, 1940; Bijou, 1943; Shafter, 1954; Badham, 1955; Goldberg, 1957; Tarjan, 1960).

With the goal of returning the retardate to the community as a contributing and self-supporting citizen it becomes all the more important that purposeful, sustained effort be directed toward evaluating the training. Measuring trainee readiness and employer satisfaction simply through success and failure provides too gross and distant a basis for evaluating the program. This study attempts to look at the progression through training into placement by examining the performance of trainees as rated against the expectations of both vocational supervisors and employers.

The Johnstone Training and Research Center was established at a time when the habilitation orientation was on the ascent in the institutional field. It was directed by statute to accomplish: "the rapid treatment of (mentally retarded) persons so as to permit their return to the community in a constructive capacity" (N.J. Statutes, 1955). The choice of approach in effecting this mandate has been more toward developing basic attributes conducive to satisfactory vocational adjustment than toward developing skilled workers with specific, marketable trades. This is in keeping with positions held by many practitioners such as Shainman (1951), who stated, "We know with a degree of certainty that employment for the largest number of employable mentally retarded is confined to unskilled work, with some possibilities in the semi-skilled trades." He further pointed out that follow-up studies of the retarded show that factors such as their ability to get along with others, to take criticism, habits of punctuality and cleanliness, honesty and loyalty are of primary importance in community placement success and failure. Experience at this Center has supported this view (Cohen, 1960).

The Center's vocational program is designed to prepare students to hold employment in any of a variety of unskilled work situations. This is related not only to the retarded individual's level of potential, but also to placement possibilities in the State. New Jersey has areas that are highly urban and industralized, and areas that are rural and agricultural. Opportunities for students may arise in any of these areas.

As for the bearing of the trend in automation, the Center's experience would tend to uphold the present vocational emphasis. Though undoubtedly there has been a decrease of unskilled industrial jobs, the availability of employment in service occupations has increased. There has actually been some expansion of number of job openings for students both locally and elsewhere in the State.

A broad array of vocational training experience is provided at Johnstone through the use of virtually all of the resources of the Center. Staff is oriented to the idea that anyone may be called on to function as an on-the-job instructor in addition to performing his primary duties. Even a specialized department such as research has been used for training students in unskilled tasks. The academic curriculum is heavily focused on prevocational preparation of pupils. Primarily, however, the areas in which training takes place are: food service, housekeeping, laundry and maintenance. These areas are staffed to obviate the necessity of depending on students for maintaining services. The students move through stages of training in a systematic, but not rigid, progression. Decisions on programming for individual students are made by a review committee which has representation from clinical, custodial and training departments.

Usually at about age 16 students enter Phase I of the Center's vocational program. While in this phase, which extends for one semester, the student is placed in a variety of work areas for purposes of evaluation. During the course of the Project 425 this was supplemented by a period of evaluation in the prevocational Unit. In the former, evaluations are provided by area supervisors; whereas in the latter, the ratings are made by vocational counselors. The student continues half-day in school while in this phase of the vocational program.

In Phase II the student receives his first vocational training assignment. This is still on a half-day basis. The assignment to a particular work area is made for one semester. Should it be warranted in a particular case, change of assignment may be made prior to the end of the semester. The average student is afforded training in three or four work situations, since students usually spend 18 to 24 months in this phase.

Full-day vocational assignment begins with Phase III. Most students are 18 years old when they enter this stage. At this level students may be retained longer than a semester in a given on-the-job training area for which they show particular suitability. Moreover, training is designed to accustom the student to the demands of competitive employment, such as working a full day, and meeting quality and quantity standards.

Progression into Phase IV is determined by the student's achievement. Here he is given his first chance to apply in daywork employment, within the nearby communities, the abilities he has gained from on-campus training. It is at this point that he begins to earn wages. On days when not employed in the community, the student continues in on-campus vocational assignments. Observations of the student's adjustments off the institution grounds provide the basis for gauging his readiness for both employment and residence in the community. Other objectives of this phase are to permit the student to learn the use of public transportation, to experience job interviews, and to acquire savings in preparation for community living.

Employment in Phase IV may vary from a single, occasional day to as much as a full week or longer. For the female students the majority of opportunities have been domestic workers in private homes. The male students have been employed as gardeners, handymen, porters, food service workers, and maintenance helpers. Minimum wage laws, and social security and other pertinent regulations have been observed. Where no legal minimum wage is established, hourly rates start at 50 cents and are adjusted upwards as the student's ability and performance improve. Employers either furnish transportation or reimburse students for use of public transportation. They also provide meals where necessary. As students advance in daywork employment they are encouraged to use nearby community recreational and shopping facilities. The emphasis here is to develop the handling, spending, and budgeting of income and the acceptable use of leisure time, two aspects of living which frequently become stumbling blocks upon final placement.

EVALUATION METHODS

Throughout Phases II through IV the common instrument for evaluation of a student's progress was the Vocational Performance and Adjustment Rating Scale (Appendix B-1). During Phases II and III each student was rated monthly by the immediate work training area supervisor. Employers hiring students, who had progressed to Phase IV, submitted ratings weekly unless employment was on a shorter basis. In the latter case, ratings were returned to the Center at the end of each work day.

SAMPLE

Two samples of students were studied to determine how performances of students are rated on campus as compared with off campus. One was selected from the group of students assigned to Phase II during the first half of the Project's duration. This provided a total of 159 students (103 males; 56 females) on whom ratings were procured at least through completion of Phase II. The number, due to attrition and the cut-off date of the Project, however, dropped perceptibly with succeeding stages, to the point where but 23 of the original 159 students were includable during the final rating period, Phase IV.

Another sample was taken of students on whom sufficient ratings were available from employers during Phase IV alone. This group included 57 students (25 males; and 32 females).

DATA TREATMENT

Due to the heavy accumulation of monthly ratings during Phase

II through IV, procedures were devised for reducing the data to manageable proportions. In Phases II and III the first three and the last three rating scales were used. The sum of ratings for each item on the first three scales were computed; the same method was followed on the last three scales. Phase IV data was limited to the last six rating scales obtained from community employers for each daywork student. Sums of the ratings for each item on the scales were computed.

Means, standard deviations and range of scores were obtained by sex for each set of sums of ratings. The mean ratings of each item were subjected to a _t_ test for significance of differences between the male and female samples throughout the phases of vocational training. Pearson correlations were computed to determine the extent of relation between ratings within a phase as well as with subsequent phases. In all correlations, data for males and females were treated separately. To be considered significant, correlations had to meet the criterion of .01 level or better.

FINDINGS

In comparing the distribution of mean ratings for males and females, _t_ test computations showed essential similarity between the two groups in Phases II through IV. Only one rating item industriousness in Phase IV yielded a significant difference, with the female mean being higher than the male.

Interitem correlations within the sets of ratings at the start and end of each phase showed a high percentage of significance at all stages of training (Appendices E-1 through E-3). For the male students, the percentage of significant r's was especially high, ranging from 92 to 100. For the female students the range was from 100% at the end of Phase II, to a low of 50% at the end of Phase III. The scales from employers in Phase IV produced significant r's throughout the male and female matrices.

Correlations obtained between successive stages of training showed higher agreement for ratings given male students than female while on campus (Appendices E-4, E-5 and E-7). In neither the male nor the female group were more than four correlations out of a total of 156 at the .01 level or beyond when ratings in Phases II and III were compared with off-campus ratings in Phase IV (Appendix E-6 and E-8). In fact, on-campus ratings showed a high preponderance of negative but non-significant r's with off-campus ratings.

More specifically, the highest degree of agreement among male ratings in successive training stages occurred between the start of Phase II and end of Phase III, with approximately four-tenths of the r's being significant. In contrast, there were no significant r's in the female matrices with end of Phase III. The highest number of significant r's within the female matrices was between start and end sums of Phase II, with one-eighth of the correlations meeting the .01 test. This was fewer than found in any set of r's between successive stages of training for male students.

The computed r's also give some indication of the relation between sub-groups of items on the rating scale -- personal, inter-personal and job skills -- as evaluated at the start of phases with the respective ratings at the end of phases. Not only was there a tendency for ratings of males to show increasingly higher agreement as they progressed through the training stages, but the ratings by sub-categories at the start of Phase II showed greater agreement with end of Phase III than with intervening stages. Moreover, there were nine out of nine significant r's between job skill ratings at the start of Phase III with those at the end of Phase III. Interpersonal ratings between the two mentioned points agreed significantly in 9 out of 16 possibilities. The agreement between the personal ratings in this matrix was but 7 out of 36. In the computations of ratings at the start of Phase II with subsequent ratings, the number of significant r's was highest with Phase III sums at the end, both on the basis of the entire scale, as well as within the three sub-categories. For female students the number of significant r's appeared to follow a reverse pattern to that noted for males. That is, there was less agreement between successive stages as the girls approached the end of the on-campus training. Actually the amount of agreement between sums of ratings in Phase II at the start and at the end was thin -- less than 15% of the r's were at the .01 level -- and this was the matrix with the highest number of significant correlations.

DISCUSSION

The absence of significant differences between the average ratings received by male students as compared with female was not anticipated so consistently throughout the Center's vocational program. It had been assumed that a number of conditions associated with the training experiences could have decided influence on the designation ratings to girls as compared with boys. For one, there was the maturational difference between sexes during the adolescent period of

DEVELOPMENT. IN GENERAL, THE ADOLESCENT GIRL HAS BEEN FOUND TO MATURE PHYSICALLY AND SOCIALLY EARLIER THAN THE BOY (HORROCKS, 1962; ROGERS, 1962). OTHER REASONS WERE BELIEVED TO LIE IN THE TRAINING PROGRAM ITSELF. THE DESIGN OF VOCATIONAL TRAINING IS SUCH THAT IT ACCENTUATES DIFFERENCES IN ROLES BY SEXES AND THUS ATTEMPTS TO PREPARE THE STUDENT FOR SOCIETY'S EXPECTATIONS OF ADULTS. WHILE THIS MAY NOT TEND TO FAVOR THE FEMALE OVER THE MALE STUDENT, IT MAY BE RELATED IN THAT CRITERIA FOR RATINGS NECESSARILY BECOME MORE AND MORE DIFFERENTIAL BY SEX. AN ADDITIONAL CONDITION THAT COULD HAVE PERTAINED IS THE SMALLER NUMBER OF TRAINING AREAS ON CAMPUS FOR GIRLS THAN FOR BOYS.

STILL OTHER POSSIBILITIES WERE BELIEVED TO LIE IN THE OBSERVATIONS THAT GIRLS' BEHAVIOR EVIDENCED FEWER DISCIPLINARY PROBLEMS AND THUS MIGHT HAVE RAISED THE RATINGS ASSIGNED THEM OVER THOSE GIVEN BOYS. AS FOR SELECTIVE FACTORS AT ADMISSION AND PLACEMENT, NEITHER GENERAL OBSERVATIONS NOR AVAILABLE DATA WERE SUFFICIENT TO ESTABLISH THEIR EFFECT ON RATINGS.

THE INTERITEM CORRELATIONS ON THE RATING SCALE AT DIFFERENT STAGES OF VOCATIONAL TRAINING APPEAR TO HAVE A BEARING ON THE ABOVE DISCUSSION. WHILE THE HALO EFFECT WAS MORE STRONGLY IN EVIDENCE AMONG THE ON-CAMPUS RATINGS GIVEN MALE STUDENTS, IT WAS NEVERTHELESS SUBSTANTIAL AMONG THE FEMALE RATINGS. INTERCORRELATIONS OF RATINGS PROVIDED BY EMPLOYERS WERE TOTALLY UNDISCRIMINATIVE FOR EACH SEX. UNDER THESE CIRCUMSTANCES IT IS ALL THE MORE CURIOUS THAT SEX DIFFERENCES DID NOT APPEAR IN THE $\underline{T}$ COMPUTATIONS. THESE CROSS-SECTIONAL FINDINGS RAISE SERIOUS QUESTION ABOUT THE ADEQUACY OF THE SCALE EMPLOYED AND REINFORCE THE NECESSITY FOR DEVISING NEW INSTRUMENTS SUFFICIENTLY REFINED TO MEASURE

THE PROGRESSION OF STUDENTS MORE ACCURATELY. THE QUESTION ABOUT THE SCALE LEAVE STRONG DOUBTS AS TO THE UNIVERSAL APPLICABILITY OF THE FINDING THAT NO DIFFEREENCES EXIST BETWEEN THE PERFORMANCE OF EDUCABLE FEMALE TRAINEES AND THAT OF MALES.

THE LONGITUDINAL FINDINGS WHICH SHOWED GREATER AGREEMENT AMONG RATINGS FOR MALES THAN FOR FEMALES IN SUCCESSIVE STAGES OF TRAINING, MAY BE BASED ON OBSERVED DIFFERENCES IN RATES OF PROGRESS MADE BY SEXES. GIRLS TEND TO REACH THE OFF-CAMPUS ASSIGNMENTS SOONER THAN BOYS. THIS IS NOT JUST A PRODUCT OF DEMONSTRATED READINESS FOR DAYWORK. THE OPPORTUNITIES FOR GIRLS IN THE LOCAL COMMUNITY HAS BEEN APPRECIABLY DIFFERENT. THE WORK HAS BEEN MORE "SHELTERED" FOR GIRLS. SINCE MOST GO OUT ON HOUSEWORK ASSIGNMENTS SUPERVISION IS NOT ONLY DIRECT AND IMMEDIATE, BUT IT IS LARGELY ON A ONE-TO-ONE BASIS. DAYWORK FOR BOYS TEND TO BE IN LARGER ESTABLISHMENTS SUCH AS RESTAURANTS, CARWASH AND FARMS. MOREOVER THERE IS GREATER SEASONAL FLUCTUATION IN REQUESTS FOR BOYS THAN FOR GIRLS. SUCH CONDITIONS UNDOUBTEDLY DO CONTRIBUTE TO THE DIFFERENTIAL IN RATE OF DAYWORK PLACEMENT. THE OVERALL EFFECT OF THESE FACTORS HAS BEEN TO FORESHORTEN THE DURATION OF MANY OF THE GIRLS' TRAINING IN PHASE III. THUS THE NUMBER OF FEMALE CASES AVAILABLE FOR CORRELATIONAL PURPOSES IN PHASE III WAS LIMITED AND MAY ACCOUNT FOR THE LOW RATE OF AGREEMENT OF RATINGS BETWEEN THIS STAGE AND EARLIER RATINGS.

THE ABSENCE OF SIGNIFICANT AGREEMENT BETWEEN RATINGS MADE ON THE CENTER'S CAMPUS AND THOSE MADE BY EMPLOYERS IN THE COMMUNITY WAS NOT ENTIRELY UNEXPECTED, BUT ITS EXTENT WAS DISQUIETING. AT FACE VALUE, THIS FINDING WOULD APPEAR TO RAISE AN EMBARRASSING QUESTION ABOUT THE EFFECTIVENESS OF

THE CENTER'S EFFORT AT HABILITATION. ACTUALLY THE RESULTS HAVE THEIR AFFIRMATIVE IMPORT. FOR ONE, THEY EMPHASIZE THE NEED FOR DEVELOPING A BETTER INSTRUMENT FOR MEASURING STUDENT PERFORMANCE IN DAYWORK. THIS IS PARTICULARLY INDICATED WHEN COMBINED WITH THE RESULTS OBTAINED FROM INTER-ITEM CORRELATIONS ON SCALES SUBMITTED BY COMMUNITY EMPLOYERS. SECONDLY, THE RESULTS AFFIRM THAT AN APPRECIABLE SELECTIVE PROCESS HAS BEEN ACCOMPLISHED BY THE CENTER STAFF BY THE TIME DAYWORK ASSIGNMENTS ARE MADE. THERE WOULD ACTUALLY BE MORE REASON FOR CONCERN IF ON-CAMPUS AND OFF-CAMPUS RATINGS WERE IN TOTAL AGREEMENT. CURRENT TRAINING TECHNIQUES ARE NOT UNIVERSALLY ENABLING; NOR DO PRESENT PROCEDURES FOR SELECTION OF STUDENTS WITH POTENTIAL APPROACH PERFECT ACCURACY. THUS THE TRAINING PROGRAM CARRIES A MAJOR RESPONSIBILITY FOR CONTINUALLY REEVALUATING ITS TRAINEES. AS DESCRIBED PREVIOUSLY, THE JOHNSTONE PROGRAM IS DESIGNED SO THAT STUDENTS WHO SHOW POOR PROGRESS ARE ELIMINATED BEFORE THE DAYWORK ASSIGNMENT; AND THOSE WHO HAVE POTENTIAL ARE NOT REQUIRED TO REMAIN THROUGHOUT THE PROGRAM CYCLE IF SUITABLE ARRANGEMENTS FOR TRAINING AND CARE CAN BE PROVIDED IN THE COMMUNITY. THE RESULTS OBTAINED WOULD SEEM TO AFFIRM THAT SUCH HAS BEEN CARRIED OUT.

SUMMARY

MEAN RATINGS OF STUDENTS IN TRAINING SHOWED NO DIFFERENCE BY SEX AT ANY STAGE. AS FOR INTERITEM CORRELATIONS ON THE RATING SCALE AT SPECIFIC STAGES OF VOCATIONAL TRAINING, THESE WERE MUCH HIGHER FOR MALES THAN FEMALES DURING ON-CAMPUS TRAINING; AND EQUALLY HIGH DURING DAYWORK FOR BOTH SEXES. COMPARING RATINGS FROM STAGE TO STAGE, GREATER AGREEMENT WAS FOUND AMONG RATINGS FOR MALE STUDENTS THAN FEMALES WHILE IN ON-CAMPUS TRAINING, THERE WAS AN ABSENCE

OF SIGNIFICANT CORRELATIONS FOR BOTH SEXES BETWEEN ON-CAMPUS AND OFF-CAMPUS RATINGS. THE SIGNIFICANCE OF THESE FINDINGS ARE DISCUSSED.

Chapter 7

GROUP COUNSELING

Jerome S. Nichols

Harris Kahn

The relatively limited literature concerned with group counseling of retardates (Cotzin, 1948; Atrachan, 1955; Gorlow, et. al. 1963; Ringelheim and Polatsek, 1955; Stacey and DeMartino, 1957) suggests that attention has been focused primarily on attitudinal or behavioral change. In reviewing the progress reports of sheltered workshops, DiMichael (1960) commented upon the increasingly widespread and enthusiastic adoption of group counseling in rehabilitation with the retarded. Little appears to have been reported, however, on systematic assessments of the effects of group counseling on vocational performance or adjustment of retarded trainees. Perhaps the paucity of study has stemmed from the diversity of opinion about the effectiveness of group counseling with retardates in situations other than vocational training. The positive results reported by Thorne (1948) have not been observed by other investigators; Yonge and O'Connor (1951) had some success, but Vail (1955) and Mann (1955)

REPORTED LACK OF SUCCESS.

IT WOULD APPEAR INDISPUTABLE THAT THE USE OF GROUP COUNSELING AFFORDS ADVANTAGES OF SOCIALIZING EXPERIENCES AND OF ECONOMY OF TIME BEYOND THOSE AVAILABLE IN INDIVIDUAL COUNSELING PROCEDURES. IN ORDER TO PERMIT ASSESSMENT OF ITS EFFECTS ON TRAINING SUCCESS, A GROUP COUNSELING PROGRAM WAS INITIATED AS A PART OF THIS PROJECT MIDWAY IN THE FIRST YEAR OF THE STUDY. BOTH BEFORE AND SINCE INITIATION OF THE GROUP COUNSELING, THE PSYCHOLOGY, SOCIAL SERVICE, AND VOCATIONAL DEPARTMENTS OF THE INSTITUTION HAVE PROVIDED EITHER REGULARLY SCHEDULED OR "AS NEEDED" COUNSELING SERVICE TO INDIVIDUAL STUDENTS. BECAUSE ELIMINATION OF SUCH SERVICES WOULD HAVE REPRESENTED A MAJOR AND UNDESIRABLE REVISION IN PROGRAM, THEY WERE RETAINED THROUGH THE DURATION OF THE PROJECT. ASSESSMENT OF THE EFFECTS OF GROUP COUNSELING IN VOCATIONAL TRAINING WAS MADE, THEN, IN COMPARISON WITH INDIVIDUAL COUNSELING, IN A VARIETY OF FORMATS, RATHER THAN IN COMPARISON WITH NO COUNSELING.

INITIALLY, A HIGHLY STRUCTURED APPROACH WAS USED WITH ALL THE COUNSELING GROUPS. THE CONTENT FOR PHASES I AND II STUDENTS INCLUDED THE FOLLOWING SUBJECTS: ORIENTATION TO COUNSELING PROGRAM, REASONS FOR BEING AT JOHNSTONE, WHAT IS WORK AND WHY DO PEOPLE HAVE TO WORK, PERSONAL HABITS AND MANNERS, AND THE EMPLOYER AND WHAT HE EXPECTS OF A WORKER. COUNSELING PROGRAM CONTENT FOR PHASES III AND IV STUDENTS INCLUDED: HOW TO GET A JOB, QUALITY AND QUANTITY OF WORK, ABSENTEEISM AND PUNCTUALITY, GENERAL SAFETY AT WORK, PAY DEDUCTIONS, BANKING EARNINGS, VACATION AND OTHER BENEFITS, AND SOURCES OF JOB INFORMATION.

THE GENERAL PROCEDURE FOR EACH SESSION CONSISTED OF THE

COUNSELOR PRESENTING A TOPIC AND PROVIDING RELEVANT INFORMATION, AFTER WHICH COMMENTS AND DISCUSSION FROM GROUP MEMBERS WERE ENCOURAGED. DISCUSSIONS SOMETIMES WERE SUPPLEMENTED BY FILM STRIPS AND/OR SIMPLE ILLUSTRATIVE LITERATURE. OCCASIONALLY ROLE PLAYING WAS UTILIZED FOR TOPICS SUCH AS THE JOB INTERVIEW.

ALTHOUGH A STRUCTURED APPROACH WAS USED IN EACH SESSION, THE STUDENTS WERE ENCOURAGED TO EXPRESS THEMSELVES FREELY, AND THEY WERE ASSURED THAT THERE WOULD BE NO REPERCUSSIONS RESULTING FROM ANY OF THEIR REMARKS. IN AN EFFORT TO ASSURE CONFIDENTIALITY, THE MEMBERS OF THE GROUP WERE REQUESTED BY THE COUNSELOR NOT TO REPEAT ANY OF THE DISCUSSION WHICH MIGHT GET ANOTHER STUDENT IN "TROUBLE" OR CAUSE HIM ANY EMBARRASSMENT IF OTHER STUDENTS OR STAFF MEMBERS OUTSIDE OF THE GROUP WERE TO HEAR OF THE DISCUSSION.

THERE WERE MIXED RESULTS AND REACTIONS TO THIS INITIAL COUNSELING PROGRAM FROM THE VARIOUS GROUPS. THE OLDER STUDENTS IN PHASE III AND IV, GENERALLY DEMONSTRATED POSITIVE ATTITUDES INITIALLY TOWARD THE PROGRAM. HOWEVER, WITH REPETITION OF MATERIAL THESE STUDENTS BECOME BORED AND RESTLESS. ORIGINALLY, IF A STUDENT REMAINED IN THE PHASE AFTER HIS FIRST EIGHT COUNSELING SESSIONS, HE WOULD BE EXPOSED TO THE SAME TOPICS THAT HE HAD PREVIOUSLY. THE YOUNGER STUDENTS IN PHASE I WERE GENERALLY APATHETIC TOWARD THE MATERIAL PRESENTED TO THEM. POSSIBLY THIS COULD HAVE BEEN ANTICIPATED SINCE THESE STUDENTS WERE, AT THE TIME, AT LEAST TWO YEARS FROM COMMUNITY LIVING AND EMPLOYMENT, SO THAT THE CONTENT DID NOT HAVE HIGH IMMEDIACY VALUE.

AS A RESULT OF THE APPARENT LACK OF SUCCESS OF THE INITIAL PROGRAM, MAJOR REVISIONS WERE MADE IN THE COUNSELING PROgram outline. The Phase I students were given a much less structured program in order to permit them to explore problems that were more meaningful to them. The Phase II and III students were divided into three different groups in each of their respective phases; assignments to groups were based on the amount of time that the student had been in each phase. Each level and phase contained different material so that any repetition other than a brief review was avoided.

Almost immediately the revised approach had favorable results. The Phase I students were much more receptive to the unstructured approach. They ventilated their concern and dismay with personal and institutional problems and appeared to experience relief, if not always insight. Also, the Phase II and III students who remained in counseling did not demonstrate the increasing lack of interest which they had previously manifested. Because of the new counseling program's success, the revised outline was adopted by the Project's personnel and retained throughout the remainder of the program.

SAMPLE

When the group counseling was initiated, all students in all phases of training were assigned to one of two general groups, one of which was to receive group counseling. Sub-groups were formed on the basis of phase of training, and in each phase the sub-group was equated on criteria of age, I.Q., and sex with the sub-group not receiving group counseling. The sub-groups ranged in size from 4 to 9 members, and almost all included both males and females. The techniques employed for equating groups in original assign-

MENTS TO THE COUNSELING PROGRAM WERE EMPLOYED ALSO AS ADDITIONAL STUDENTS ENTERED VOCATIONAL TRAINING.

DURING THE PROJECT, 120 STUDENTS RECEIVED GROUP COUNSELING AND 122 STUDENTS WERE ASSIGNED TO THE NON-COUNSELING GROUP. OF THOSE RECEIVING GROUP COUNSELING, 68 ENTERED THE PROGRAM AT PHASE I, 13 ENTERED AT PHASE II, AND 39 ENTERED WHILE PARTICIPATING IN PHASES III AND IV. STUDENTS ASSIGNED TO GROUP COUNSELING AND REMAINING IN THE PROGRAM RECEIVED EIGHT ONE-HOUR COUNSELING SESSIONS DURING EACH TRAINING SEMESTER; THIS AMOUNTED TO 16 SESSIONS PER YEAR.

AS THE COUNSELING PROGRAM PROGRESSED, IT WAS NECESSARY TO REMOVE SEVERAL STUDENTS FROM THEIR RESPECTIVE GROUPS SINCE THEY APPEARED TO BE DERIVING LITTLE OR NO BENEFIT FROM COUNSELING AND WERE PRESENTING HINDRANCES TO THE PROGRESS OF OTHER GROUP MEMBERS. ALSO, IT WAS APPARENT THAT STUDENTS PARTICIPATING IN THE DAYWORK PROGRAM PRESENTED UNIQUE PROBLEMS WHICH COULD BE HANDLED BETTER BY THE DAYWORK SUPERVISOR IN INDIVIDUAL COUNSELING. ALTHOUGH THESE CHANGES MET THE STUDENTS' NEEDS MUCH MORE ADEQUATELY, THE ALTERATIONS HAD TO BE MADE AT THE EXPENSE OF THE PROJECT'S DESIGN.

AS A RESULT OF THE ABOVE MENTIONED CHANGES IN DESIGN, PLUS ATTRITION DUE TO SUCH CAUSES AS EXTENDED LEAVE PLACEMENTS AND TRANSFERS, THERE WAS FREQUENTLY INSUFFICIENT DATA TO PERMIT MEANINGFUL COMPARISONS. THE FACT THAT 44% OF THE STUDENTS ENTERED THE PROGRAM AT A PHASE OTHER THAN PHASE I ALSO POSED LIMITATIONS FOR COMPARISONS. IT COULD NOT BE CONSIDERED THAT ALL STUDENTS HAD SIMILAR EXPOSURE IN VOCATIONAL TRAINING AND GROUP COUNSELING. TO PERMIT ANALYSIS OF INFLUENCE OF GROUP COUNSELING ON VOCATIONAL RATINGS, IT was decided to avoid the effects of variations in program exposure. Data were available on 71 students who had started in Phase I and had progressed at least through Phase II. Thirty-eight of the students had been in group counseling and 33 had not. Almost all of the former students were exposed to the revised counseling program. Average attendance was 24 one-hour group counseling sessions.

DATA TREATMENT

The counseling group was compared with the control group on the basis of scores on the Vocational Performance and Adjustment Rating Scale (Appendix B-1) in each of the phases of training. For each of the groups, mean scores on each of the rating scale items were computed for first and second halves of Phase I, for first and last three ratings of Phases II and III, and for the last six ratings from Phase IV. Differences in means of the two groups was determined through use of the t test, with .01 level accepted as significant. The N's differed for the various comparisons as a result of the attritional effects in routine Center program, and because occasionally students advanced through a phase of training after a relatively brief assignment in it.

FINDINGS

With only one exception, significant differences between the groups were found only in ratings from Phase I (Appendix F-1). After the first eight weeks in that phase, students in group counseling were rated as significantly better than their controls in personal habits and manners, attitude, industriousness, calmness, and attention. Only the ratings of industriousness and attention continued to

DISCRIMINATE IN FAVOR OF THE GROUP COUNSELING STUDENTS AT THE END OF THE SECOND EIGHT WEEK PERIOD IN PHASE I. IN THE SAME SET OF RATINGS, THE COUNSELING GROUP WAS RATED ALSO AS SIGNIFICANTLY BETTER IN ABILITY TO WORK WITHOUT SUPERVISION. THE ONLY OTHER SIGNIFICANT DIFFERENCE WAS FOUND IN THE RATING FOR CALMNESS AT THE BEGINNING OF PHASE III. ALTHOUGH THERE WERE SCATTERED INSTANCES OF HIGHER MEANS FOR THE CONTROL GROUP, IN NO CASE DID THE DIFFERENCE ACHIEVE STATISTICAL SIGNIFICANCE.

DISCUSSION

THE PRESENT EFFORT TO EVALUATE THE EFFECT OF GROUP COUNSELING IN VOCATIONAL TRAINING OF RETARDATES MUST BE CONSIDERED AS EXPLORATORY, RATHER THAN DEFINITIVE, FOR SEVERAL REASONS. THE GROUP COUNSELING PROGRAM WAS SUPERIMPOSED UPON A SITUATION CHARACTERIZABLE AS A THERAPEUTIC MILIEU, THEREBY TENDING TO ATTENUATE THE LIKELIHOOD OF DEMONSTRATING POSITIVE AND FAVORABLE RESULTS ATTRIBUTABLE TO GROUP COUNSELING ALONE. FURTHER, THE DESIGN OF DATA COLLECTION PROCEDURES FOR THE PROJECT IN GENERAL, AND THE INABILITY OF AVOIDING SAMPLE ATTRITION IN AN ONGOING PROGRAM, PRECLUDED THE POSSIBILITY OF PROCURING MEASURES OF ADJUSTMENT AND BEHAVIOR AT INTERVALS OTHER THAN THOSE EMPLOYED. FOR SIMILAR REASONS, IT WAS NOT POSSIBLE TO EXPLORE ASPECTS OF BEHAVIOR OTHER THAN THOSE REFLECTED IN THE ITEMS OF THE VOCATIONAL PERFORMANCE AND ADJUSTMENT RATING SCALE. IN SHORT, THE PRESENT STUDY CANNOT BE CONSIDERED TO HAVE APPROACHED IDEAL RESEARCH CONTROLS; NEVERTHELESS THE FINDINGS APPEAR TO BE WORTHY OF CONSIDERATION IN BOTH TRAINING PROGRAM DESIGN AND AS A BASIS FOR FUTURE INVESTIGATION.

Observations on the degree and form of structure of the group counseling program as influences upon subjects' interest, participation, and progress clearly suggest that careful consideration must be given both to the design of a counseling program and to its relation to training. Apparently, subjects were not optimally responsive in a program structured almost to the point of approaching a tutorial situation. When structuring was reduced to permit greater latitude for discussion around content closely related to subjects' levels of vocational training, improvement in participation was noted. It should not be inferred, however, that members of the groups appeared capable of directing the sessions without the provision of structure by the counselors. The counselors observed that, among the various groups, the process and dynamics were similar to those reported by Astrachan (1955). There was little interaction among group members in early sessions; in later sessions interaction frequently was between individuals and the counselor, with simultaneous conversations taking place among the rest of the group. Overactivity, or a tendency to boisterousness, frequently required re-structuring by the counselor. Whether the need for structure in group counseling, which has been advocated by other investigators (Snyder and Sechrest, 1959) is a consequence of the innate deficits of retardates, or whether it is an outcome of their experience in being directed -- particularly in institutions -- cannot be determined with either the findings or observations of the present study. The issue is intriguing and worthy of further investigation.

Observations by the counselors of spontaneous and responsive content of counseling sessions were in agreement with Astrachan's (1955) report. Retardation was a frequent topic.

There obviously was considerable misconception, as well as trepidation, concerning retardation among the group members. It was apparent that few had been given prior assistance in exploring or coming to grips with the implications of their handicap. Under the burden of self-denigrating misconceptions (such as the belief that "retarded is the same as crazy") it appears likely that progress toward both social and vocational adjustment is hindered. As DiMichael (1960) has stated in commenting upon retardates' awareness of their limitations, "The retarded experience psychological pain with this perception, and they must be helped to deal with debilitating anxieties about their limitations." Perhaps the most important contribution to vocational preparation of the trainee could be that of dispelling misconceptions and aiding retardates in arriving at accurate understanding and acceptance of their handicap.

That significant differences in ratings were found only in the early stages of training may be the result of having compared group counseling subjects with controls who were receiving individual counseling services. It may be that differences are not apparent in later stages of training because over the longer period of time control subjects improved in adjustment to a degree comparable to that exhibited relatively early by group counseling subjects. An alternate explanation, that the relatively good adjustment of the counseling group did not persist over long periods of time, is not supportable with the present evidence. In any case, the findings suggest that the impact of group counseling may be most noticeable early in training, when it may be most important. It is common observation that retention of retardates in training programs frequently is based on their early adjustment, so that rapid

ATTAINMENT OF IMPROVED OR OPTIMAL ADJUSTMENTS MAY BE DECISIVE.

ALTHOUGH SIGNIFICANT DIFFERENCES WERE FOUND ONLY ON A MINORITY OF THE RATING SCALE ITEMS, IT IS NOTEWORTHY THAT GROUP COUNSELING SUBJECTS WERE RATED BETTER ON ITEMS SUCH AS CALMNESS, ATTENTION, AND ATTITUDE, WHICH PROBABLY REFLECT COMPLEX PERSONALITY FUNCTIONS. BECAUSE THE SIGNIFICANT DIFFERENCES WERE OBSERVED ALMOST ENTIRELY IN PHASE I, WHEN COUNSELING SESSIONS WERE LEAST IMMEDIATELY CONCERNED WITH VOCATIONAL CONTENT MATERIAL, IT IS POSSIBLE THAT THE FOCUS OF COUNSELING WAS SOMEWHAT DIFFERENT THAN IT WAS IN LATER PHASES. THIS, HOWEVER, WOULD NOT DENY THE VALUE OF GROUP COUNSELING AS AN INSTRUMENT OF VOCATIONAL TRAINING. RATHER, IT MIGHT SUGGEST THAT SUCH COUNSELING SHOULD COMPLEMENT RATHER THAN REPLACE TRAINING, AND SHOULD HAVE VOCATIONALLY RELATED GOALS SUCH AS IMPROVEMENTS IN INTERPERSONAL AND SOCIAL ADJUSTMENT, ATTITUDES, AND MOTIVATION.

SUMMARY

BOTH OBSERVATIONS AND STATISTICAL FINDINGS PROVIDE INDICATIONS FOR THE USE OF GROUP COUNSELING AS AN ASPECT OF VOCATIONAL TRAINING. NEITHER THE SAMPLE SIZE NOR THE AVAILABLE DATA ARE SUFFICIENT TO JUSTIFY UNIVERSALLY APPLICABLE PRESCRIPTION FOR FORMAT, CONTENT, OR GOALS. HOWEVER, IT DOES APPEAR THAT THE INCLUSION OF GROUP COUNSELING IN VOCATIONAL TRAINING IS SUFFICIENTLY PROMISING TO WARRANT FURTHER EXPLORATION AND INVESTIGATION.

Chapter 8

SPECIAL WORK GROUP

Neale L. Peterson

Harris Kahn

"NO MATTER HOW WE DETERMINE OUR GROUPINGS, WE FOREVER EXCLUDE THE IN-BETWEEN PERSON WHO NEVER SEEMS TO FIT INTO OUR PRE-ARRANGED AND ORDERED SCHEME". WITH THIS STATEMENT, FRAENKEL (1961) HAS POINTED TO ONE OF THE SERIOUS CONCERNS IN TRAINING PROGRAMS. IT IS A NOT UNCOMMON OBSERVATION THAT IN ALMOST ANY PROGRAM THERE ARE SOME STUDENTS, WHO DESPITE APPARENT ADEQUACY OF ABILITY, FAIL TO ADJUST, ARE DISRUPTIVE TO ROUTINE, REQUIRE AN INORDINATE AMOUNT OF STAFF ATTENTION, AND EXHIBIT LITTLE RESPONSE TO COUNSELING OR DISCIPLINARY MEASURES. PERHAPS BECAUSE SUCH PERSONS GENERALLY ARE CONSIDERED TO BE UNIQUE CASES, THE LITERATURE IS VIRTUALLY DEVOID OF DESCRIPTIONS OF PROGRAM MODIFICATIONS APPROPRIATE FOR THEM.

EVEN PRIOR TO THE INITIATION OF PROJECT 425, IT WAS APPARENT THAT THERE WERE A FEW STUDENTS WHO WERE POORLY ADJUSTED IN THE VOCATIONAL TRAINING PROGRAM AND WHO WERE SUFFICIENTLY DIS-

TURBING TO HINDER THE PROGRESS OF FELLOW STUDENTS. ATTEMPTS AT A VARIETY OF AMELIORATIVE MEASURES, SUCH AS COUNSELING, DEPRIVATION OF PRIVILEGES, AND CHANGES IN ASSIGNMENT, SERVED LITTLE PURPOSE WITH SUCH STUDENTS. MODIFICATION OF PROGRAM FOR THEM APPEARED TO BE NECESSARY. IT WAS RECOGNIZED THAT FOR MAXIMUM BENEFIT THE MODIFICATION SHOULD BOTH RELIEVE THE TRAINING GROUPS OF DISRUPTIVE INFLUENCES AND SHOULD PROVIDE CLOSE AND ALMOST CONSTANT SUPERVISION TO PARTICULAR STUDENTS.

PROGRAM

TO MEET THE APPARENT NEED FOR A TRAINING SITUATION WHICH COULD PROVIDE FOR A SMALL NUMBER OF POORLY ADJUSTED STUDENTS, A SPECIAL WORK GROUP PROGRAM WAS ESTABLISHED IN THE SECOND YEAR OF THE PROJECT. THE OBJECTIVE WAS TO PROVIDE A SITUATION IN WHICH, UNDER SUSTAINED CONTACT AND SUPERVISION IN A SETTING OF WORK ASSIGNMENTS, STUDENTS COULD BE INFLUENCED IN THE DIRECTION OF FAVORABLE CHANGES IN ATTITUDES AND PERSONAL AND INTERPERSONAL RELATIONSHIPS.

THE GROUP WAS SMALL IN SIZE AND WAS SUPERVISED BY A VOCATIONAL DEPARTMENT MEMBER WHO WAS NOT TRAINED IN COUNSELING. THE SUPERVISOR WAS GIVEN FREEDOM OF SELECTION OF A NUMBER OF JOBS, USUALLY OUTDOORS, TO WHICH HE COULD ASSIGN THE GROUP ON A GIVEN DAY. EACH JOB WAS DONE BY THE ENTIRE GROUP UNDER SUPERVISION, AND WORK HABITS RATHER THAN SPEED OR QUANTITY OF PRODUCTION WERE STRESSED.

STUDENTS WERE ASSIGNED TO THE SPECIAL WORK GROUP BY DECISION OF THE VOCATIONAL DEPARTMENT STAFF IF THEY HAD PRESENTED CHRONIC PROBLEM BEHAVIOR IN OTHER TRAINING ASSIGNMENTS, IF THEY HAD NOT RESPONDED TO OTHER METHODS FOR MODIFICATION OF behavior, and after inquiry with other departments of the institution revealed no contraindication to the assignments. There was no fixed duration of assignment to the special work group; students were returned to regular training assignments when there was an improvement in tractability.

SAMPLE

Five or fewer students were in the special work group at any given time. A total of 17 male students, none of whom had physical disabilities, were in the group during the project. Age ranged from 16 years to 19 years 11 months, and IQ from 50 to 87. Mean IQ was 71.

EVALUATION METHOD

From records on student's adjustment, available in the form of progress (i.e., disciplinary or commendatory) reports, problem behavior was classified as mild, moderate or severe. Classification was based upon chronicity and type of offense. Such behavior as failing to report to assignment or use of obscenity was considered as a mild offense, while behavior such as malicious destruction or assaultiveness was considered as severe.

Because the diversity of variables was large in relation to the number of cases, analysis was limited to an inspection of records with regard to length of assignment in the special work group, severity of problem before and after the assignment, level of intelligence, and disposition at termination of the Project. Due to the procedure for assignment to this work group, it was not feasible to match controls with experimental subjects without violating program.

FINDINGS

Of the 17 students assigned to the group, 10 had exhibited severe problems prior to assignment, and 7 had presented moderate problems. The mean IQ for the sample was 71, as compared with 64 for the total Center population. Three-fourths of the group above the sample mean IQ were classified as having presented severe problems prior to assignment. Moderate problem behavior was associated with 60% of those below the sample IQ mean.

Length of time in assignment to the special work group varied from less than one month to nine months. On the average, students who improved had been in the program about four months. There was a rather consistent tendency for students presenting more severe problems to remain in the assignment for the longer periods.

Improvement in adjustment following the assignment also tended to be associated with the less severe problems. Almost all of the moderate problems were described as improved in adjustment. Of the eight students in the entire group who were described as improved when returned to regular assignments, only two had been classified as severe problems prior to the special assignment. Two of the remaining eight severe cases were described as worse, and six as not changed.

At termination of the Project, five students, all of whom had presented moderate problems, were in regular training assignments. Four of the students who had presented severe problems had been transferred to institutions providing higher degree of custody. Eight of the students had been returned to the community on extended leave. Half of those placed on extended leave had been released because of

PARENTAL INSISTENCE DESPITE ADVICE OF STAFF; ALL FOUR SUBSEQUENTLY WERE RE-INSTITUTIONALIZED.

DISCUSSION

IN TERMS OF INCIDENCE OF REPORTED IMPROVEMENT IN BEHAVIOR, MODIFICATION OF PROGRAM APPARENTLY WAS ABOUT 50% SUCCESSFUL. IT SHOULD BE NOTED, HOWEVER, THAT SUCCESS OF THE PROGRAM, WHICH INVOLVED CLOSE SUPERVISION OF A SMALL GROUP PERFORMING A VARIETY OF JOBS IN WHICH WORK HABITS RATHER THAN PRODUCTION WERE STRESSED, HAD MORE FAVORABLE IMPACT ON RELATIVELY DULLER STUDENTS WHO TENDED TO PRESENT RELATIVELY LESS SEVERE PROBLEMS. HOWEVER, ALTHOUGH THE GAINS MAY HAVE BEEN MODEST AND LIMITED, THE SALVAGE OF STUDENTS' POTENTIAL APPEARS TO HAVE BEEN JUSTIFIED, PARTICULARLY IN VIEW OF THE RELATIVELY BRIEF PERIOD OF TIME SPENT IN THE SPECIAL PROGRAM BY THOSE STUDENTS WHO IMPROVED IN ADJUSTMENT.

ASSOCIATION OF MORE SEVERE PROBLEM BEHAVIOR WITH RELATIVELY BRIGHTER STUDENTS, AND THEIR APPARENT RESISTANCE TO INFLUENCE OF THE SPECIAL WORK GROUP PROGRAM SHOULD NOT HAVE BEEN UNEXPECTED. THE MORE MILD THE RETARDATION, THE MORE LIKELY IS A YOUTH TO BE INSTITUTIONALIZED BECAUSE HIS BEHAVIOR PRESENTS DIFFICULT PROBLEMS IN MANAGEMENT. THE PROBLEM BEHAVIOR SELDOM IS ELIMINATED MERELY BY THE PROCESS OF INSTITUTIONALIZATION, AND OFTEN NOT BY SUCH VARIATIONS IN PROGRAM AS THE INSTITUTION CAN PROVIDE. APPARENTLY MORE, OR OTHER, RESOURCES THAN THOSE REPRESENTED IN THE SPECIAL WORK GROUP PROGRAM WILL BE REQUIRED TO PERMIT REALIZATION OF THE POTENTIAL FOR COMMUNITY LIVING OF INTRACTABLE, MILDLY RETARDED STUDENTS.

THE IMPORTANCE OF AN INCIDENTAL BENEFIT OF THE SPECIAL WORK GROUP PROGRAM SHOULD NOT BE OVERLOOKED. PRIOR TO THEIR SPECIAL ASSIGNMENT THE BEHAVIOR OF STUDENTS WAS DISRUPTIVE, DISCORDANT AND DISTURBING IN REGULAR TRAINING ASSIGNMENTS. ATTENTION OF SUPERVISORS TOO OFTEN HAD TO BE DIRECTED TO ATTEMPTS AT CONTROL OF THEIR BEHAVIOR RATHER THAN TO THE TRAINING NEEDS OF OTHER STUDENTS IN THE GROUP. TEMPORARY REMOVAL OF PROBLEM STUDENTS FOR SPECIAL ASSIGNMENT PERMITTED RESTORATION OF REGULAR TRAINING ASSIGNMENTS TO HARMONIOUS AND EFFECTIVE OPERATION. THE OBTAINED RESULTS APPEAR TO JUSTIFY FURTHER EXPLORATION WITH SIMILAR PROGRAM MODIFICATION, USING BOTH EXPERIMENTAL AND CONTROL GROUPS.

SUMMARY

TO PROVIDE MODIFICATION OF TRAINING PROGRAM FOR A SMALL NUMBER OF STUDENTS WHO PRESENTED CHRONIC BEHAVIOR AND MANAGEMENT PROBLEMS, A SPECIAL WORK GROUP WAS ESTABLISHED. SUCCESS OF THE PROGRAM IN AFFECTING IMPROVEMENT OF BEHAVIOR EVIDENTLY WAS RELATED TO SUCH STUDENT CHARACTERISTICS AS DEGREE OF INTELLECTUAL DEFICIT AND SEVERITY OF PROBLEMS THEY PRESENTED PREVIOUSLY. FINDINGS AND IMPLICATIONS ARE DISCUSSED.

Chapter 9

VOCATIONAL PLACEMENT

Harris Kahn

It is self-evident that the crucial test of a vocational training program is degree of success in job placement of its trainees. In recognition of the necessity for such test, the design of this Project had included procedures which would permit assessment of effectiveness of the training program by means of collection of pertinent data on students who had been returned to the community after training. The intention was to obtain semi-annually, on students who had been placed in the community, detailed reports on work situation characteristics (Appendix G-1) and employer's evaluations using the Vocational Performance and Adjustment Rating Scale (Appendix B-1).

Because of unanticipated and uncontrollable circumstances complete data could not be collected. On release from the Center students are placed under supervision of Field Services, which agreed to collect the information on placement. Field Services, an agency of the Division of Mental Retardation, has among its functions, guidance and other services to residents released from all of New Jersey's institutions for retardates. The agency is organized into three district offices, each of which has responsibility for a separate geographic region.

For several reasons, it was not possible to obtain complete or uniform data requested for this Project. Resistence to efforts at collecting information were met in several quarters. In some cases employers, in other cases parents, in a few instances students apparently attempting to resolve ambivalence about separation and independence, thwarted attempts at contact by Field Services. The heavy case loads carried by Field Services workers often prohibited the allocation of sufficient time to collecting the data, and they attempted to meet the request by furnishing such information as was available in files. It was necessary also for Field Services workers to rely upon information in files for reporting on students who had been completely discharged from supervision.

At least partial data were returned on all students who had been placed on extended leave under supervision of Field Services. The number and completeness of Vocational Performance and Adjustment ratings were insufficient to permit statistical analyses. Consequently it was not possible to determine relationships between evaluations received by students while in training with those received while in community employment.

There was also lack of uniformity and completeness in the information received on the form provided for the purpose, regarding work situations of students who had been released to the community. Data available from this source were insufficient for statistical analyses involving determination of relationships with data obtained during evaluation and training phases of the program. Analysis of success in placement had to be limited to a survey of working situation characteristics.

DATA TREATMENT

From the information available in Field Services workers' reports on 129 students, summary tabulations were prepared on such characteristics as employment, salary, and subsistence arrangements of students who had been returned to the community (Appendix G-2).

Based on status of students at termination date for data collection in the Project, three groups were identified: returned to the Center from placement in the community, under supervision on extended leave, and discharged from supervision. Distribution statistics were computed only for salary; incidence of unreported information in other categories was too great to permit statistical analyses.

FINDINGS

Only 4 out of 129 students placed in the community were returned to the Center. The ratio of males to females in both the on-leave and discharged groups closely approximated the 2:1 characteristic of the total Project sample.

Approximately 75% of each group still in the community was reported as employed or otherwise gainfully occupied. Of

THE SMALL NUMBER RETURNED TO THE INSTITUTION, 75% HAD BEEN UNEMPLOYED, HOWEVER, THE DATA DID NOT INCLUDE INFORMATION ON DURATION OF UNEMPLOYMENT PRIOR TO RETURN.

LESS THAN HALF OF EACH OF THE GROUPS IN THE COMMUNITY, ON WHOM THE INFORMATION WAS REPORTED, RECEIVED SUBSISTENCE ASSISTANCE IN THE FORM OF ROOM AND/OR BOARD AS PART OF SALARY ARRANGEMENT IN EMPLOYMENT. THE REMAINDER OF EACH GROUP PROVIDED FOR THEIR OWN MAINTENANCE OUT OF EARNED INCOME. HOWEVER, MORE THAN 75% WERE IN A SHELTERED LIVING ARRANGEMENT; THAT IS, THEY RESIDED IN HOMES OF PARENTS OR OTHER RELATIVES, OR IN SUCH PLACES OF EMPLOYMENT AS NURSING OR PRIVATE HOMES.

EVIDENCE OF THE RELATIVE MOBILITY FOR EMPLOYMENT OF STUDENTS IN COMMUNITY PLACEMENT IS REFLECTED IN THE REPORTS ON ABILITY TO TRAVEL. APPROXIMATELY 90% OF EACH GROUP WERE SAID TO BE CAPABLE OF INDEPENDENT USE OF PUBLIC TRANSPORTATION FACILITIES. TWO-THIRDS OF THOSE ON WHOM INFORMATION WERE REPORTED ACTUALLY TRAVELLED TO THEIR JOBS.

IN TERMS OF SALARY, STUDENTS WHO HAD BEEN DISCHARGED FROM SUPERVISION HAD A SOMEWHAT HIGHER AVERAGE THAN THE APPROXIMATELY $35.00 PER WEEK WHICH WAS MEAN AND MODE FOR THE GROUP STILL ON LEAVE. FURTHERMORE, THE DISCHARGED GROUP HAD HIGHER MINIMUM AND MAXIMUM EARNINGS THAN THE ON-LEAVE GROUP.

DISCUSSION

EXPERIENCE IN PLACEMENTS FROM THE CENTER SUGGESTS THAT IN THIS SAMPLE, THE FINDING OF LOW INCIDENCE OF RETURNS FROM LEAVE IS AN ARTIFACT OF THE DATA COLLECTION SCHEDULE. AMONG THOSE WHO WERE REPORTED AS STILL ON LEAVE, THERE WAS AN

UNDETERMINED NUMBER WHO HAD BEEN PLACED IN THE COMMUNITY IN SECOND OR THIRD TRIALS AFTER HAVING BEEN RETURNED TO THE INSTITUTION FROM PRIOR PLACEMENT. CENSUS DATA SINCE THE OPENING OF THE CENTER INDICATE THAT UP TO 40% OF THOSE PLACED ON LEAVE ARE RETURNED AT LEAST ONCE. IN SOME INSTANCES ADDITIONAL TRAINING WAS INDICATED. IN OTHERS, RETURN WAS FOR REASONS OTHER THAN THE STUDENT'S WORK PERFORMANCE OR ADJUSTMENT. REPORTS FROM WHICH THE PRESENT FIGURES WERE DERIVED HAD BEEN PREPARED WITHIN A RELATIVELY BRIEF PERIOD OF TIME. CONSEQUENTLY THE FINDINGS ARE BEST INTERPRETED AS INDICATING APPARENT INCIDENCE OF SUCCESSFUL PLACEMENT AT ANY GIVEN TIME, RATHER THAN FOR THE TOTAL DURATION OF THE PROJECT.

THE NUMBER STILL IN THE COMMUNITY REPORTED AS UNEMPLOYED SHOULD NOT BE CONSIDERED AS INDICATIVE OF INCIDENCE OF IDLENESS. MANY LISTED AS UNEMPLOYED HAD BEEN RETURNED TO THEIR PARENTS' HOMES. ALTHOUGH THEY DID NOT HAVE OUTSIDE EMPLOYMENT, THEY CONTRIBUTED TO HOUSEHOLD "ECONOMY" IN THE SENSE THAT THEY PERFORMED DOMESTIC CHORES. BECAUSE ABILITY TO MAKE SUCH CONTRIBUTION REPRESENTS, IN MOST CASES, IMPROVEMENT OVER PRIOR STATUS, IT MAY BE PARTLY ATTRIBUTABLE TO THE TRAINING PROGRAM.

THE VARIETY OF JOBS HELD BY THE GROUPS STILL IN THE COMMUNITY HAS APPARENT IMPLICATIONS FOR EMPHASIS IN TRAINING. THE LARGEST CATEGORY OF PLACEMENTS WAS IN DOMESTIC SERVICE IN WHICH ABOUT HALF OF THE GIRLS WERE EMPLOYED. THE NEXT LARGEST CATEGORY OF PLACEMENTS, WHICH ACCOUNTED FOR ABOUT ONE-FIFTH OF BOTH GROUPS COMBINED, WAS IN FOOD SERVICE OCCUPATIONS. FARM AND INDUSTRIAL JOBS EACH WERE HELD BY ONLY FIVE STUDENTS, AND NO MORE THAN TWO WERE IN EACH OF THE 17 OTHER CATEGORIES OF UNSKILLED OR SEMI-SKILLED EMPLOYment. These distributions suggest that there is little likelihood of anticipating specific job placements of retardates, and relatedly, that for males particulary it probably is advisable for training programs to provide retardates with diverse job experiences.

It appears that the students placed in the community were fairly self-sufficient. Under living arrangements in which some degree of supervision was available, the majority were capable of unaided use of public transportation facilities and were meeting responsibility for personal subsistence out of earned income. The minimum earnings reported for both groups probably are associated with part-time employment, because employer's compliance with minimum wage standards is one of the conditions of placement of students. Salary levels of the group of students who had been discharged were somewhat higher than that of students on leave and still under supervision. Most probably this results from the former group having been in the community longer so that they had more opportunity to earn increases.

Although the opportunity to relate performance in training program with success in placement was lost because of circumstances beyond control of the Project staff, some evidence for efficiency of the program is available in the findings which are reported. Of the 437 students who were in vocational training at the Center during the years of the Project, about 14% have achieved successful adjustment in community placement and have been discharged from supervision. It is noteworthy that an equal percentage is still on leave under supervision. In the respects in which comparisons have been made, they do not differ appreciably from the discharged group. It would

APPEAR, THEREFORE, REASONABLE TO ANTICIPATE THAT ALMOST ALL OF THE ON-LEAVE GROUP ALSO WILL PROGRESS TO THE POINT OF BEING DISCHARGED FROM SUPERVISION.

SUMMARY

ALL OF THE ANTICIPATED DATA ON STUDENTS RELEASED TO COMMUNITY WERE NOT RECEIVED, SO THAT RELATIONSHIPS BETWEEN PERFORMANCE IN THE TRAINING PROGRAM AND IN COMMUNITY PLACEMENT COULD NOT BE ASCERTAINED. AVAILABLE DATA, HOWEVER, INDICATES THAT A RELATIVELY HIGH PROPORTION OF STUDENTS WERE GAINFULLY OCCUPIED AND SUITABLY PREPARED FOR COPING WITH DEMANDS OF LIVING IN THE COMMUNITY. IMPLICATIONS OF FINDINGS ARE DISCUSSED.

Part IV

EPILOGUE

Chapter 10: Implications for Habilitation

Chapter 11: Summary

Chapter 10

IMPLICATIONS FOR HABILITATION

Joseph J. Parnicky

Harris Kahn

Studies in the behavioral field, according to Skinner (1963), not infrequently "tell...more about the appratus or procedure than about the organism." This observation may well fit Project 425, at least in some measure. From the start it was perceived as a combined research-demonstration project set in motion within an established residential program directed toward the habilitation of educable adolescents. Embarking had its hazards, hazards that would be considered insurmountable by classical experimentalists. The staff of the Project was mindful of the impending difficulties. Without exception, the staff holds tight experimental design in high regard and values basic scientific investigation. Considerable basic research is conducted at Johnstone (Blackman, 1957; 1961).

Taking an apparently diametrically opposed approach to these values was dictated by other equally powerful convictions.

They were based on an overview of past, present, and potential significant contributions of residential programs to the field of mental retardation, and particularly to vocational habilitation. The tack taken in this Project also was propelled by a belief that the institution can serve as a laboratory -- some would liken it perhaps to an arena -- for discovery of knowledge far beyond the limited efforts made to tap its resources to date. The format of the Project was also dictated by a conviction that was later expressed by the President's Panel on Mental Retardation (1960). With the present stage of development, the Panel concluded, "Scientific discovery cannot be 'programmed' ... for mental retardation is a phenomenon of such diversity and complexity that to impose a narrowly oriented plan of research upon it would be to stifle rather than to encourage creativity and originality." The need for discovery is present and persistent; and it often must be satisfied out of an array too complex to permit ready catergorization and control of all its variables.

The plan of the Project was sparked by the hope of stimulating the practitioner who has not yet devoted himself to scientific inquiry. By covering content that he faces in daily routines under "real" conditions, with which he is familar, it was hoped that he might be induced to apply his creativity and originality to the maze of questions inviting study.

With impetus from the national administration, the organized parents' groups and other sources, programs and services for the retardate are likely to expand at unprecedented rates. The new demands are apt to multiply existing shortages in personnel and other resources. These imminent pressures are all the more reason for studies focused on improvement

AND MODIFICATION OF EXISTING MEANS FOR MEETING NEEDS. WHILE SUPPORT OF BASIC RESEARCH SHOULD NOT ONLY BE CONTINUED BUT EXPANDED, RESULTS FROM SUCH ARE NOT LIKELY, NOR SHOULD THEY BE EXPECTED, TO CONTRIBUTE IMMEDIATELY AND TANGIBLY TO THE SITUATION AT HAND.

PERUSAL OF THE VARIOUS STUDIES CONDUCTED WITHIN THIS PROJECT SHOULD READILY ESTABLISH THAT THE DESIGN APPLIED IS BY NO MEANS PRESENTED AS A MODEL FOR OTHERS TO EMULATE OR THAT THE FINDINGS ARE PERCEIVED AS HAVING BEEN MORE THAN TENTATIVELY ESTABLISHED. JOHNSTONE AS A SETTING UNDOUBTEDLY COLORS MUCH OF THE FINDINGS. ITS MANDATE TO RETURNING STUDENTS TO THE COMMUNITY AS SOON AS THE STUDENT AND CONDITIONS OUTSIDE THE INSTITUTION CAN BE MATCHED WAS MAINTAINED THROUGHOUT THE PROJECT. ITS DEDICATION TO CONTINUING IMPROVEMENT REVISION OF PROGRAM RESULTED IN CHANGES DURING THE PROJECT'S TENURE BASED ON OBSERVATIONS PROVIDED BY THE STAFF. ALONG WITH SUCH CONSCIOUSLY INDUCED CONDITIONS, THERE WERE OTHERS, SUCH AS STAFF TURNOVER, INTERMITTENT VACANCIES, AND RISE AND FALL IN JOB OPPORTUNITIES FOR STUDENTS, WHICH OCCUR AS PART OF THE NATURAL ORDER OF INSTITUTIONAL OPERATIONS. ADMITTEDLY SUCH CONDITIONS CREATED PROBLEMS WHICH THREATENED PURITY OF RESEARCH DESIGN AND TAXED STAFF'S COMPETENCE AND TEMPERAMENT. EFFORTS APPLIED TO COPE WITH THESE PROBLEMATIC CONDITIONS ARE OPENLY DISCUSSED, SO THAT OTHERS MAY GAIN FROM THE EXPERIENCE AND ADVANCE THE FIELD BEYOND PRESENT ACHIEVEMENTS.

WITH FULL ACKNOWLEDGEMENT FOR ITS LIMITATIONS, THE PROJECT DOES HIGHLIGHT SEVERAL CONSIDERATIONS WHICH ARE BELIEVED TO HAVE PERTINENCE FOR PRACTICE BEYOND THE JOHNSTONE INSTITUTIONAL GROUNDS. TWO CRITICAL ASPECTS OF HABILITATION WERE EXPLORED: WAYS OF EVALUATING THE VOCATIONAL POTENTIAL OF

EDUCABLE ADOLESCENTS AND WAYS OF DEVELOPING THAT POTENTIAL. INFORMATION RELATED TO THESE QUESTIONS WAS ACCUMULATED OVER A FOUR YEAR PERIOD DURING WHICH STUDENTS WERE STUDIED BOTH CROSS-SECTIONALLY AND LONGITUDINALLY. AT DESIGNATED STAGES OF VOCATIONAL DEVELOPMENT -- FROM PREVOCATIONAL EVALUATION, THROUGH TRAINING PHASES, AND INTO COMMUNITY PLACEMENT -- STUDENTS' PERFORMANCES WERE MEASURED WITH TESTS, RATINGS AND SCHEDULES. IN ADDITION, THE INFORMATION OBTAINED ABOUT INDIVIDUAL STUDENTS WAS RELATED WHEREVER POSSIBLE FROM ONE STAGE OF DEVELOPMENT TO SUBSEQUENT STAGES IN ORDER TO DETERMINE THE PATTERN OF PROGRESS ACHIEVED WITH THE TRAINING TECHNIQUES. IN THIS REGARD THE FINDINGS HAVE A QUALITY WHICH IS NOT BELIEVED CHARACTERISTIC OF RETROSPECTIVE FOLLOW-UP STUDIES WHICH COMPRISE A MAJOR PORTION OF THE LITERATURE ON VOCATIONAL REHABILITATION. A TOTAL OF 437 MILDLY RETARDED ADOLESCENTS, OR VIRTUALLY EVERY STUDENT OVER THE AGE OF 16 IN RESIDENCE AT THE CENTER DURING THE PROJECT, CONTRIBUTED SOME DATA TO THE VARIOUS STUDIES UNDERTAKEN. FACTORS SUCH AS ATTRITION, THE SPAN OF TIME AND CRITERIA FOR SELECTING SAMPLES, DELIMITED SEVERELY THE NUMBER OF STUDENTS WHO COULD BE STUDIED IN SOME ASPECTS OF THE PROJECT, SO THAT THE CONCLUSIVENESS OF FINDINGS VARIES FROM SAMPLE TO SAMPLE.

SELECTING APPROPRIATE TRAINEES FOR VOCATIONAL PROGRAMS IS OBVIOUSLY A KEY TO THE EFFECTIVE AND JUDICIOUS USE OF RESOURCES. PROJECT 425 INCLUDED THREE MAJOR MEANS CURRENTLY AVAILABLE TO RESIDENTIAL PROGRAMS FOR THIS PURPOSE, AND ONE EXPERIMENTAL TECHNIQUE WHICH WAS BELIEVED TO HAVE PREDICTIVE POTENTIAL. WITHIN THE FORMER GROUP, PREVOCATIONAL DATA WAS ACQUIRED FROM STUDENTS' PERFORMANCES IN A WORKSHOP UNIT UNDER A VOCATIONAL COUNSELOR'S SUPERVISION, IN VARIOUS ON-CAMPUS WORK AREAS UNDER THE DIRECTION OF JOB SUPERVISORS, AND IN TESTING SESSIONS WITH PSYCHOLOGISTS. TAKEN AS A

WHOLE, THE FINDINGS REINFORCE THE DIFFICULTY IN MAKING ACCURATE PREDICTIONS FROM PREVOCATIONAL INFORMATION ACROSS TO PLACEMENT SUCCESS. THEY DO SUGGEST, HOWEVER, THAT THE PROBLEM IS NOT SO AMORPHOUS AS TO PRECLUDE ANY SUCCESS. IN FACT, THE RESULTS SHOW THAT EACH OF THE APPROACHES HAD SOME POTENTIAL FOR PREDICTING VOCATIONAL SUITABILITY, BUT THAT NONE WAS OUTSTANDINGLY EFFICTIVE AS A PREDICTOR.

THE PROBLEM THUS IS TO OBTAIN THE PROPER COMBINATION AMONG THE PREVOCATIONAL METHODS TO ACHIEVE OPTIMUM PREDICTIVE EFFICACY. THIS STUDY INDICATES THAT SEVERAL DIRECTIONS ARE WORTH PURSUING. PSYCHOLOGISTS APPEAR TO HAVE TECHNIQUES FOR MEASURING SOME ASPECTS OF A TRAINEE'S POTENTIAL FAR MORE EFFICIENTLY AND WITHOUT LOSS OF PREDICTIVE POTENCY THAN CAN BE ACCOMPLISHED IN WORKSHOPS OR IN ACTUAL WORK AREAS. MOREOVER, THE FINDINGS INDICATE THAT WELL ORIENTED JOB SUPERVISORS CAN CONTRIBUTE USEFUL INFORMATION TO THE PREVOCATIONAL ANALYSIS OF INDIVIDUAL STUDENTS. WITH EXISTING SHORTAGES OF QUALIFIED VOCATIONAL COUNSELORS, THESE IMPRESSIONS INDICATE THAT THE ROLE AND CONTRIBUTION OF COUNSELORS MIGHT WELL BE AUGMENTED THROUGH GREATER USE OF PSYCHOLOGISTS AND JOB SUPERVISORS IN THE PREVOCATIONAL PROCESS. ALTHOUGH NOT MEASURED DIRECTLY IN THE STUDY, THE CONTRIBUTION OF THE COUNSELOR TO THE DEVELOPMENT AND MANAGEMENT OF THE VOCATIONAL PROGRAM WAS SUFFICIENTLY IN EVIDENCE SO THAT THESE OBSERVATIONS SHOULD NOT BE INTERPRETED AS A BASIS FOR QUESTIONING THE NEED FOR HIS SERVICES.

WHEN CORRELATED, THE PREVOCATIONAL MEASURES PRESENTED A PATTERN OF PREDICTIONS WHICH LOOSELY ASSUMED THE CONFIGURATION OF A SAW-TOOTHED WAVE THAT HAD TWO ATTRIBUTES. IT DIMINISHED WITH THE LENGTH OF THE TIME INTERVAL. ITS PEAKS

WERE RELATED TO THE FINAL PERIODS IN SUCCEEDING TRAINING STAGES; AND THE VALLEYS WERE IN THE STARTING PERIODS OF TRAINING STAGES. THE SIGNIFICANCE OF THIS LIES IN AT LEAST A COUPLE OF DIRECTIONS. FOR ONE, THESE RESULTS POINT TO THE IMPORTANCE OF THE CRITERION IN STUDIES OF PREDICTION. REPORTS IN THE LITERATURE FREQUENTLY PLACE RELIANCE ON MEASURES AT A POINT IN TIME, AT A STAGE IN THE STUDENT'S PROGRESSION. THE FINDINGS OF PROJECT 425 SHOW THAT A SMALL SHIFT IN TIME OR STAGE OF TRAINING CAN APPRECIABLY AFFECT THE EXTENT OF PREDICTIVE RELATION OBTAINED BETWEEN PREVOCATIONAL DATA AND TRAINING DATA.

IN PRACTICE, THE IMPORT OF THESE RESULTS IS THAT THEY MAY BE POINTING OUT A CONDITION THAT CAN BE CONTRIBUTING TO THE EXISTING GAP BETWEEN EVALUATION AND TRAINING SERVICES, BETWEEN TESTER AND INSTRUCTOR. NOT INFREQUENTLY STAFF WAS CONFRONTED BY DISPARITIES BETWEEN THE OBSERVATIONS MADE BY TRAINING PERSONNEL OF NEWLY ASSIGNED STUDENTS AND THE EVALUATION SUMMARY SUBMITTED FOR PLANNING THEIR LEARNING EXPERIENCES. THIS AT TIMES WAS ASCRIBED SOLELY TO INADEQUACIES IN THE PREVOCATIONAL MEASURES. WHILE EXISTING TECHNIQUES DO HAVE THEIR DEFICIENCIES, THE SITUATION CANNOT BE ENTIRELY BLAMED ON SUCH. PROJECT STAFF OBSERVED ANOTHER CONTRIBUTING CONDITION: THE STUDENT'S MODE OF ADJUSTMENT TO NEW SITUATIONS. SOME STUDENTS MOVE READILY FROM ONE SITUATION INTO ANOTHER; OTHERS FIND CHANGE VERY DIFFICULT. SOME BECOME MORE MOTIVATED IN THE NEW SITUATION; OTHERS THE REVERSE. AN APPRECIATION OF THE EXTENT TO WHICH THIS MAY AFFECT THE SIMILARITY BETWEEN EVALUATION MEASURES AND PRESENTING BEHAVIOR OF A NEWLY ADVANCED STUDENT IS CRITICAL TO THE SOUND APPLICATION OF THE TEAM APPROACH IN THE HABILITATION PROGRAM. THE EVALUATOR NEED NOT BECOME DEFENSIVE WHEN HIS ESTIMATES ARE CHALLENGED. HE MUST BE ALL

THE MORE CONSCIOUS OF CLUES DURING PREVOCATIONAL OBSERVATION OF THE STUDENT'S PATTERN OF ACCOMODATING TO IMMEDIATE CHANGE AS WELL AS POTENTIAL FOR EVENTUAL ACHIEVEMENT. THE TRAINING PERSONNEL, ON THE OTHER HAND, SHOULD BECOME WARY OF DRAWING FINAL CONCLUSIONS FROM IMPRESSIONS BASED ON A STUDENT'S INITIAL REACTION TO NEW SITUATIONS. WHERE NEGATIVE BEHAVIOR IS EXHIBITED, THIS SHOULD BE PERCEIVED AS INDICATIVE OF NEED FOR HELP AND NOT AS A CONCLUSIVE INDEX OF UNSUITABILITY FOR VOCATIONAL TRAINING.

THE CHANGE IN RATINGS OF STUDENTS AS THEY MOVED TOWARD THE END OF TRAINING PHASES ATTESTED TO THEIR CAPABILITY FOR MODIFYING THEIR PERFORMANCES. MOREOVER, IT INDICATED THAT TRAINING PERSONNEL COULD MODIFY THEIR IMPRESSIONS. BY THE END OF A PHASE THEY FOUND STUDENTS' PERFORMANCES MUCH MORE LIKE THAT ORIGINALLY ESTIMATED BY THE PREVOCATIONAL PROCEDURES. THESE RESULTS DID NOT NECESSARILY DESPEL THE FEELING OF APARTNESS BETWEEN TRAINING AND EVALUATING SERVICES, FOR PERSONNEL MAY HAVE FORGOTTEN WHAT HAD BEEN SAID IN THE EVALUATION REPORT AND THUS CONTINUED TO BE CONVINCED OF THE INADEQUACIES IN THE PREVOCATIONAL MEASURES. IDENTIFYING THIS POTENTIAL AREA OF DIVISIVENESS WITHIN THE TOTAL INSTITUTIONAL PROGRAM SHOULD PROVE USEFUL IN PLANNING STRATEGIES FOR ACHIEVING GREATER COHESION WITHIN THE INSTITUTIONAL PROGRAM.

AS FOR THE ADEQUACY OF SPECIFIC TECHNIQUES APPLIED IN PREVOCATIONAL EVALUATION, THE PROJECT REVIEWED THE FOLLOWING: A RATING SCALE, A SERIES OF WORK SAMPLE TASKS, AND A BATTERY OF PSYCHOLOGICAL TESTS. THE FINDINGS DO NOT SUPPORT AN UNEQUIVOCAL STATEMENT OF SUPERIORITY OF ANY OF THESE APPROACHES.

THE RATING SCALE WAS, HOWEVER, THE MOST QUESTIONABLE DEVICE.

THE HIGH INTERITEM AGREEMENT IN ALL PHASES OF THE PROGRAM REFLECTS UNDESIRABLY WEAK DISCRIMINATIVE EFFICIENCY OF EACH OF THE SCALE ITEMS, OR, MORE GENERALLY, A PRONOUNCED HALO EFFECT. BECAUSE OF THE DESIGN OF THE PROJECT, THE RATING SCALE SERVED AS BOTH PREDICTOR AND CRITERION, AND PERSONNEL WHO PROVIDED RATINGS ON STUDENTS IN EVALUATION FREQUENTLY PROVIDED PERFORMANCE RATINGS ON THE SAME STUDENTS IN TRAINING. SUCH PROCEDURES CONTRIBUTED INESCAPABLY TO THE INTERDEPENDENCY OF RATING SCALE, STUDENTS, RATERS AND SITUATIONS, SO THAT APPARENT SHORT-COMINGS OF THE RATING SCALE ITSELF MAY NOT HAVE BEEN ENTIRELY RESPONSIBLE FOR ITS DEFICIENCIES IN PREDICTION. THE FACT THAT RELATIONSHIPS BETWEEN EARLY AND LATE RATINGS DIMINISHED WITH INCREASE IN TIME, AS OCCURRED ALSO FOR CORRELATIONS BETWEEN OTHER EVALUATION MEASURES AND LATER RATINGS, MAY HAVE BEEN DUE IN PART TO PERCEPTIBLE CHANGES IN STUDENTS' PERFORMANCES.

PERFORMANCE ON WORK SAMPLE TASKS IN THE PREVOCATIONAL UNIT WERE MEASURED IN SUCH OBJECTIVE TERMS AS TIME AND ERRORS AS WELL AS BY SUBJECTIVE GRADES IN SOME OPERATIONS. INTERCORRELATIONS OF THE TASK SCORES PROVED THAT THESE MEASURES WERE RELATIVELY MORE INDEPENDENT OF EACH OTHER THAN WERE RATING ITEMS APPLIED IN THIS STUDY. HOWEVER, THE SCORES PROVED TO BE THE WEAKEST PREDICTORS WHEN COMPARED WITH THE OTHER METHODS TESTED. EVEN WHEN WORK SAMPLES WERE USED AS A BASIS FOR RATINGS, THEIR PREDICTIVE EFFICIENCY WAS LESS THAN THAT BASED UPON RATINGS DRAWN FROM ON-CAMPUS WORK AREAS.

WHILE THE ABOVE FINDINGS WOULD TEND TO UPHOLD THE POSITION THAT THE CLOSER THE EVALUATION SITUATION APPROXIMATES THE REAL WORK SETTING THE MORE ACCURATE THE PREDICTION WILL BE, THE RESULTS OBTAINED WITH PSYCHOLOGICAL DEVICES DO NOT

PROVIDE CONFIRMATION. THE VARIABLES IN THE PSYCHOLOGICAL BATTERY TEND TO RELATE WELL WITH EVALUATIONS OBTAINED FROM OTHER SOURCES AND TO HAVE SOME DEGREE OF RELATIONSHIP WITH ASPECTS OF PERFORMANCE AND ADJUSTMENT IN LATER STAGES OF TRAINING. IT WAS PRIMARILY THE MOTOR SKILLS TESTS WHICH APPEARED TO HAVE PREDICTIVE POTENCY AND TO BE MOST USEFUL AS PREDICTORS OF JOB SKILLS IN EARLY STAGES OF TRAINING. IN LATER STAGES OF TRAINING, ABILITY FOR PREDICTION TO PERSONAL AND INTERPERSONAL RATINGS WAS EVIDENT. TESTS OF PERSONALITY AND TEMPERAMENT, THE PRIME PRIZED TOOLS OF SOME PSYCHOLOGISTS, EXHIBITED FAR LOWER CORRELATIONS WITH PERFORMANCE IN SUBSEQUENT PHASES OF TRAINING.

THIS SHOULD NOT BE CONSTRUED AS MEANING THAT PERSONALITY AND TEMPERAMENTAL CHARACTERISTICS ARE NON-CONTRIBUTORY IN VOCATIONAL PERFORMANCE OR SUCCESS. BOTH COMMON OBSERVATION AND A BODY OF EVIDENCE DENY SUCH CONCLUSION. BUT THE FINDINGS DO TEND TO CONTRADICT PREVAILING IMPRESSIONS IN THAT THEY QUESTION WHETHER WORKSHOP AND PSYCHOLOGICAL EVALUATIONS ARE BEING PROPERLY UTILIZED. IF THE FINDINGS OF THIS PROJECT HAVE MERIT, THEN PSYCHOLOGICAL TESTS COULD BE USED MORE EFFECTIVELY FOR MEASURES OF JOB SKILLS, AND WORKSHOPS COULD BE BETTER USED TO SECURE MEASURES OF PERSONAL AND INTERPERSONAL COMPETENCIES.

FOR IMPROVED PREDICTION, REVAMPING AVAILABLE EVALUATION DEVICES IS URGENTLY REQUIRED. ECONOMIES CAN BE REALIZED THROUGH ELIMINATION OF NON-DISCRIMINATING AND NON-PREDICTING DEVICES, THROUGH RETENTION OF MEASURES WHICH AFFORD SOME DEGREE OF PREDICTION AND ARE INDEPENDENT OF OTHER EVALUATION MEASURES, AND THROUGH SELECTING THE MORE RELIABLE AND LESS LENGHTY OF THE PREDICTIVE DEVICES WHICH RELATE WELL WITH EACH OTHER. THE EVIDENCE OF THIS STUDY INDICATES THAT

DIFFERENCES IN CONTRIBUTION TO VOCATIONAL PREDICTION MAY BE EXPECTED FROM EACH OF THE VARIOUS MEASURES EMPLOYED, AND THAT SOME TECHNIQUES FROM EACH OF THE EVALUATIVE APPROACHES WOULD MERIT RETENTION IN A PREDICTIVE BATTERY.

IT IS CLEAR ALSO THAT CONSTRUCTION OF NEW TECHNIQUES FOR PREDICTION -- AS WELL AS FOR CRITERION -- IS NEEDED. THE PRESENT STUDY INCLUDED PRELIMINARY DEVELOPMENT OF A NEW TECHNIQUE FOR MEASURING JOB INTEREST, A FACTOR OF POTENTIAL IMPORTANCE IN VOCATIONAL APPRAISAL OF MENTAL RETARDATES. THIS INSTRUMENT, CALLED THE VOCATIONAL INTEREST AND SOPHISTICATION ASSESSMENT, IS A READING-FREE, PICTURE DEVICE. TWO FORMS WERE DEVELOPED, ONE FOR MALES AND THE OTHER FOR FEMALES, TO THE POINT WHERE THEY YIELDED SUFFICIENT EVIDENCE OF DISCRIMINATIVE EFFICIENCY AND RELIABILITY TO WARRANT ADDITIONAL INVESTIGATION OF VALIDITY AND RANGE OF APPLICABILITY.

MOVING ON TO THE SECOND PURPOSE OF THE PROJECT -- DEVELOPING THE VOCATIONAL POTENTIAL OF THE EDUCABLE ADOLESCENT IN A RESIDENTIAL PROGRAM -- THREE SAMPLES WERE STUDIED. THEY WERE THE STUDENTS IN THE REGULAR VOCATIONAL TRAINING SEQUENCE AT THE CENTER; THE STUDENTS WHO RECEIVED GROUP COUNSELING; AND THE HANDFUL OF INTRACTABLE STUDENTS WHO FAILED TO ACCOMODATE TO THE ESTABLISHED PROGRAM.

RELATING THE PERFORMANCE OF TRAINEES ON CAMPUS WITH THE PERFORMANCE OFF CAMPUS, THE EXPECTATIONS OF VOCATIONAL SUPERVISORS WITH THAT OF COMMUNITY EMPLOYERS, IS BELIEVED IMPORTANT TO THE ADVANCEMENT OF INSTITUTIONAL SERVICES, WHICH SO RECENTLY HAVE MOVED FROM CUSTODY TO HABILITATION. SIMPLY APPLYING THE CRITERION OF EMPLOYMENT SUCCESS OR FAILURE IS NOT SUFFICIENT TO PROVIDE THE ANALYSIS OF THE TRAINING PROGRAM REQUIRED FOR SOUND REEVALUATION AND REVISION OF TRAIN-

ING TO MEET EXISTING CONDITIONS. OF THE VARIOUS SCHOOLS OF THOUGHT IN THE FIELD, THE JOHNSTONE VOCATIONAL APPROACH LEANS TOWARD INSTRUCTING STUDENTS IN THE BASIC ATTRIBUTES BELIEVED ESSENTIAL TO SATISFACTORY VOCATIONAL ADJUSTMENT, RATHER THAN TOWARD PRODUCING SKILLED WORKERS IN SPECIFIC OCCUPATIONS. FOR THE STUDY, RATINGS OF STUDENTS AT VARIOUS STAGES OF TRAINING WERE COMPARED WITH THOSE SUBMITTED BY EMPLOYERS HIRING STUDENTS ON A DAYWORK BASIS.

AVERAGE RATINGS OF MALE AND FEMALE STUDENTS WERE FOUND TO SHOW NO SIGNIFICANT DIFFERENCES IN ANY STAGE OF THE VOCATIONAL PROGRAM. THIS WAS PARTICULARLY INEXPLICABLE IN VIEW OF SUCH FACTORS AS MATURATIONAL SEX DIFFERENCES IN ADOLESCENCE, AND DIFFERENTIAL TRAINING IN ACCORDANCE WITH SEX ROLES. THIS WOULD APPEAR TO ADD WEIGHT TO THE QUESTIONS ABOUT THE UTILITY OF THE RATING SCALE AS A DEVICE FOR MEASURING PROGRESSION IN A VOCATIONAL PROGRAM.

CORRELATING ON-CAMPUS RATINGS WITH OFF-CAMPUS RATINGS OF STUDENTS DEMONSTRATED THAT THERE WAS VIRTUALLY NO AGREEMENT BETWEEN IMPRESSIONS SUBMITTED BY INSTRUCTORS AND THOSE SUBSEQUENTLY SUBMITTED BY EMPLOYERS. DESPITE THE SEEMING NEGATIVE IMPLICATIONS OF THIS FINDING, THE RESULTS ARE BY NO MEANS DEVASTATING. FIRST, THEY SUPPORT CONCLUSIONS DRAWN FROM PREVOCATIONAL FINDINGS IN REGARD TO THE INADEQUACY OF THE RATING SCALE. ITS WEAKNESSES AS A PREDICTIVE TOOL WERE LIKEWISE APPARENT WHEN USED AS A MEASURE OF PERFORMANCE NOT JUST AT THE INSTITUTION, BUT IN THE COMMUNITY AS WELL. THUS THE NEED FOR DEVELOPING A MORE EFFECTIVE INSTRUMENT IN MEASURING EMPLOYMENT SUCCESS AS WELL AS TRAINING ACHIEVEMENT IS AFFIRMED. BESIDES, THE ABSENCE OF SIGNIFICANT AGREEMENT BETWEEN DAYWORK RATINGS AND TRAINING RATINGS UPHOLDS THE CONTENTION THAT THE TRAINING PROCESS

DOES SCREEN THE STUDENTS. SINCE PROCEDURES FOR ELIMINATING THE UNSUITED STUDENTS HAVE BEEN IN EFFECT, THE IMPACT ON CORRELATIONAL COMPUTATION SHOULD BE IN THE DIRECTION WHICH WAS FOUND.

AS FOR COUNSELING, UNTIL RECENTLY RETARDATES WERE NOT CONSIDERED SUITABLE SUBJECTS, PARTICULARLY DURING THE ERA WHEN INSIGHT WAS THE PRIMARY OBJECTIVE. TODAY EXPERIMENTATION IS EVIDENT FROM ARTICLES IN JOURNALS AND PAPERS AT CONFERENCES. ONE OF THE DEVELOPMENTS HAS BEEN THE INTRODUCTION OF GROUP COUNSELING INTO HABILITATION PROGRAMS FOR THE RETARDED. TO ASSESS THE EFFECT OF THE GROUP COUNSELING UPON THE VOCATIONAL PROGRESS OF A RESIDENTIAL POPULATION, TWO MATCHED GROUPS WERE ESTABLISHED. ONE RECEIVED GROUP COUNSELING SCHEDULED IN EIGHT ONE-HOUR SESSIONS PER SEMESTER, WITH SUB-GROUPS ARRANGED ACCORDING TO PHASE OF VOCATIONAL TRAINING. THE NON-COUNSELING GROUP DID HAVE CLINICAL ASSISTANCE AVAILABLE ON AN INDIVIDUAL NEED BASIS, AS DID ALL STUDENTS AT THE CENTER. GRANTED THAT SUCH CONDITIONS LIMITED THE EXTENT TO WHICH THE AFFECT OF GROUP COUNSELING COULD BE EXPLORED, THE FINDINGS DID SHOW THAT RATINGS FOR THE COUNSELING GROUP WERE SOMEWHAT BETTER DURING THE EARLY STAGES OF TRAINING. AS PREVIOUSLY MENTIONED, OTHER FINDINGS OF THE PROJECT INDICATED THAT MANY STUDENTS MAY HAVE DIFFICULT WITH THE INITIAL MONTHS OF TRAINING. FOR THIS AND OTHER REASONS, FURTHER EXPERIMENTATION WITH THIS METHOD OF COUNSELING APPEARS WARRANTED.

THE THIRD GROUP STUDIED WAS SELECTED FROM STUDENTS WHO CHRONICALLY PRESENTED BEHAVIOR AND MANAGEMENT PROBLEMS. TO RELIEVE THE REGULAR TRAINING AREAS OF COPING WITH THE DISRUPTIVE BEHAVIOR OF THESE TRAINEES, A SPECIAL WORK GROUP

WAS ESTABLISHED. THE GROUP WAS LIMITED TO NO MORE THAN FIVE BOYS AT ANY TIME. DAILY ASSIGNMENTS WERE VARIED BUT WERE USUALLY OUTDOORS AND WERE DETERMINED BY WHAT THE SUPERVISOR THOUGHT WOULD ABSORB THE BOYS. ALTHOUGH THE SUPERVISOR WAS NOT SPECIALLY TRAINED, HE WAS ORIENTED TO HELPING THE BOYS BECOME BETTER SOCIALIZED. BASED ON THE SMALL SAMPLE STUDIED, IT WOULD APPEAR THAT THE BOYS WITH THE SEVERE PRESENTING PROBLEMS AND MILD RETARDATION IMPROVED LESS THAN THOSE WHO WERE MODERATELY RETARDED AND HAD MODERATE PROBLEMS. THE EVIDENCE OBTAINED IS NOT SUFFICIENTLY CONCLUSIVE TO WARRANT GENERAL APPLICATION OF THESE FINDINGS BUT THEY ARE SUFFICIENT TO ENCOURAGE FURTHER EXPERIMENTATION.

THE FINAL TEST OF ANY VOCATIONAL PROGRAM RESTS IN THE CAPABILITY OF ITS GRADUATES TO OBTAIN AND RETAIN COMPETITIVE EMPLOYMENT. COMPLETING THE RESIDENTIAL PROGRAM PROVIDES A DOUBLE CHALLENGE TO THE STUDENTS; NOT ONLY MUST HE THEN ADJUST TO NEW WORKING CONDITIONS BUT ALSO NEW LIVING CONDITIONS. PROCURING COMPLETE AND RELIABLE FOLLOW-UP DATA ON SUCH ADJUSTMENTS PROVED TO BE A SIZEABLE PROBLEM. FROM PARTIAL INFORMATION SECURED ON 129 STUDENTS IN PLACEMENT, APPROXIMATELY HALF HAD PROGRESSED SUFFICIENTLY IN THE COMMUNITY TO BE DISCHARGED. ABOUT THREE-FOURTHS OF THE ENTIRE GROUP WAS REPORTED AS GAINFULLY EMPLOYED AT LEAST PART TIME. ROUGHLY ONE QUARTER WAS RESIDING IN INDEPENDENT LIVING ARRANGEMENTS. AS FOR THEIR EARNINGS, THE AVERAGE WAS APPROXIMATELY $35.00 PER WEEK, INCLUDING THOSE WHO WERE WORKING PART TIME. THESE ACHIEVEMENTS TESTIFY TO THE SELF-SUFFICIENCY OF THE STUDENTS TRAINED UNDER THE CENTER'S PROGRAM. THE TYPES OF JOBS HELD BY THE STUDENTS WERE ALL WITHIN THE UNSKILLED OR SEMI-SKILLED CATEGORIES AND RANGED WIDELY, WITH SOME CONCENTRATION IN DOMESTIC

SERVICE AMONG THE FEMALES AND FOOD SERVICE FOR BOTH MALES AND FEMALES. THIS DISTRIBUTION TENDS TO AFFIRM THE APPROPRIATENESS OF CONTINUING THE EMPHASIS ON GENERAL ATTRIBUTES FOR VOCATIONAL SUCCESS AND FOR INCLUDING A RANGE OF NON-SKILLED VOCATIONAL TRAINING AREAS FOR MILDLY RETARDED STUDENTS ENROLLED IN A RESIDENTIAL, HABILITATION PROGRAM. MORE THAN THAT, THE RELATIVE SUCCESS OF TRAINEES IS REASSURING IN VIEW OF THE QUESTIONS RAISED BY THIS STUDY ABOUT THE VARIOUS EVALUATIVE APPROACHES. OBSERVATIONS FROM POST-INSTITUTIONAL PLACEMENTS SUBSTANTIATE THAT STAFF JUDGMENTS, FORMULATED BY PRACTITIONERS FROM A NUMBER OF DISCIPLINES, MUST BE BASED ON RELEVANT MATERIAL, EVEN IF HEAVILY SUBJECTIVE, AND DO PRODUCE GRADUATES OF COMPETENCE FOR COMPETITIVE EMPLOYMENT AND COMMUNITY LIVING.

Chapter 11

SUMMARY

Joseph J. Parnicky

Harris Kahn

VRA Project 425 was undertaken to study the pattern of advancement of educable adolescents through vocational training within a residential center. In recognition of the extensive need for determining the discriminative efficiency and relative contributions of various approaches to evaluating vocational potential of retardates, and for assessing the predictive capability of measures of their performances in prevocational and training stages, both longitudinal and cross-sectional techniques of investigation were used. Attention was given also to the effects of controlled variations in the training program on students' progress within the four year span of the study.

The subjects of the Project were students at Johnstone, a residential training center offering a program in which students progress from academic preparation to vocational evaluation, through on-the-job training into community placement. A prevocational battery of psychological tests, and vocational measures were employed as predictors. Ratings obtained during training and placement phases of the program were used as criteria. Observations were made of group counseling and a special work group to determine the merits of such variations in program. The Project included, in addition, preliminary studies directed toward developing a reading-free vocational interest test.

All students in the vocational phases of the Center's program served as sample for these studies over the four-year period. A multi-discipline staff review determined students' readiness to enter vocational training. Generally this occurred at the age of 16, a few years above the minimum age for admission to the Center. Uper age limit of the sample was 24 years. Intellectual level was within the range of mild retardation, with some cases outside the range on either end. The total sample of 437 included about half as many girls as boys, a ratio parallel to the institution's population.

To an extent, the type of data collected varied with phase of training. A battery of psychological tests was administered to students annually regardless of stage of vocational training. Ratings of students' performances were also secured throughout training assignments on campus as well as during day-work in the community. Work sample scores and ratings based on prevocational workshop performance, however, were obtained only during the first semester or prevocational evaluation phase. Upon placement in the community, additional data were collected by means of a questionnaire.

Because of attritional effects of routine institutional program, size of samples differed widely among the various studies conducted. Product-moment correlations were computed to determine reliabilities and predictive potential of various evaluation measures. Tests for significance of difference in means were applied in the investigation of sex differences in scores and of the stability of repeated measures. Only statistics at the .01 level or better were considered significant.

Findings showed there was considerable overlap, as well as some independence, among measures derived from all three evaluation approaches. High degrees of reliability and inter-correlation were found within the group of psychological tests, which included measures of motor skills, personality variables and intelligence. There was more independence of items within the series of work sample measures, however, many of these had poor discriminative efficiency. Rating scale items were so highly inter-correlated as to be suggestive of a pervasive halo effect in every stage of training. Each of the evaluation techniques apparently had some potency for prediction of adjustment and performance; but the strength tended to diminish over longer periods of time and to be relatively stronger to the end, than to the beginning, of a training phase. None of the techniques were able to predict students' ratings in daywork employment off campus.

Program variations in the form of a special work group and group counseling were found to be moderately successful in favorably modifying students' behavior. The former was implemented as a means of coping with a small number of intractable students. Improvement was observed to occur

PRIMARILY IN THE DULLER STUDENTS WHO HAD CHRONICALLY PRESENTED MANAGEMENT PROBLEMS OF MODERATE SEVERITY. GROUP COUNSELING, IN WHICH HALF OF A SAMPLE WAS ASSIGNED ON RANDOM SELECTION, APPARENTLY HAD A MEASURED BENEFICIAL EFFECT ON STUDENTS' BEHAVIOR ONLY EARLY IN TRAINING. THE IMPROVEMENTS IN THE EXPERIMENTAL GROUP WERE LATER EQUALLED BY STUDENTS WHO WERE NOT RECEIVING GROUP COUNSELING.

DEVELOPMENT OF A READING-FREE TEST OF VOCATIONAL INTEREST INVOLVED EXTENSIVE SAMPLING OF INSTITUTIONAL POPULATIONS OUTSIDE OF JOHNSTONE. FACTOR ANALYSIS APPLIED TO DATA COLLECTED WITH TWO VERSIONS OF THE TEST INDICATED THE FEASIBILITY OF DIFFERENTIATING VOCATIONAL INTEREST OF RETARDATES. EVIDENCE WAS ADDUCED ALSO ON RELIABILITY OF THE DEVICE. NON-DEFINITIVE FINDINGS FROM AN INTRODUCTORY EXPLORATION OF VALIDITY, USING A LIMITED SAMPLE OF JOHNSTONE STUDENTS, SUGGESTED FRUITFUL AVENUES FOR FURTHER INVESTIGATION OF APPLICABILITY OF THE TEST.

DIFFICULTIES IN OBTAINING DATA ON STUDENTS WHO WERE RELEASED TO THE COMMUNITY PRECLUDED SUBSTANTIAL ANALYSIS OF RELATIONSHIPS BETWEEN EVALUATION OR TRAINING PERFORMANCES AND POST-INSTITUTIONAL ADJUSTMENTS. AVAILABLE DATA DID INDICATE THAT AN APPRECIABLE PERCENTAGE OF THE POPULATION WAS PLACED IN THE COMMUNITY, WAS REASONABLY SELF-SUFFICIENT AND WAS MAKING ADEQUATE SOCIAL AND VOCATIONAL ADJUSTMENTS.

IMPLICATIONS OF FINDINGS, SEPARATELY AND IN RELATION TO EACH OTHER, ARE DISCUSSED PARTICULARLY WITH REFERENCE TO PRACTICE AND TO ADDITIONAL INVESTIGATION.

APPENDICES

APPENDIX A-1: Legend of Abbreviations for Prevocational Unit Tasks.

OCCUPATIONAL AREA	TASK	TYPE OF SCORE OBTAINED	ABBREVIATION
Clerical	Envelope Assembly	Units	EAU
	Adding Machine	Units	AMU
	Adding Machine	Errors	AME
	Counting Money	Errors	CME
	Stock Clerk	Units	SCU
	Stock Clerk	Errors	SCE
	Collating	Units	COU
	Alphabetical Filing	Errors	AFE
	Alphabetical Filing	Grade	AFG
	Mail Sorting Units	Units	MSU
	Mail Sorting Errors	Errors	MSE
Light Industrial	Cable Clamp Assembly	Units	CCU
	Carriage Bolt Assembly	Units	CBU
	Poker Chips-Tube Pkg.	Units	PTU
	Poker Chips-Tube Pkg.	Errors	PTE
	Poker Chips-Box Pkg.	Errors	PBE
	Screw Sorting	Units	SSU
	Water Color Painting	Grade	WCG
	Washer Packaging	Units	WPU
	Washer Packaging	Errors	WPE
	Switch Assembly	Time	SAT
	Switch Assembly	Units	SAU
	Switch Assembly	Errors	SAE
	Bingo Chip Packaging	Units	BCU
Service	Setting Table	Grade	STG
	Making Bed	Grade	MBG
	Vacuum	Grade	VAG
	Floor Polishing	Grade	FPG
	Sweeping	Grade	SPG
Hand Tools	Tool Identification	Errors	TIE
	Hammer	Grade	HMG
	Saw	Grade	SWG
	Screwdriver	Grade	SDG
	Coping Saw	Grade	CSW
	Window Pane Install.	Grade	WPG

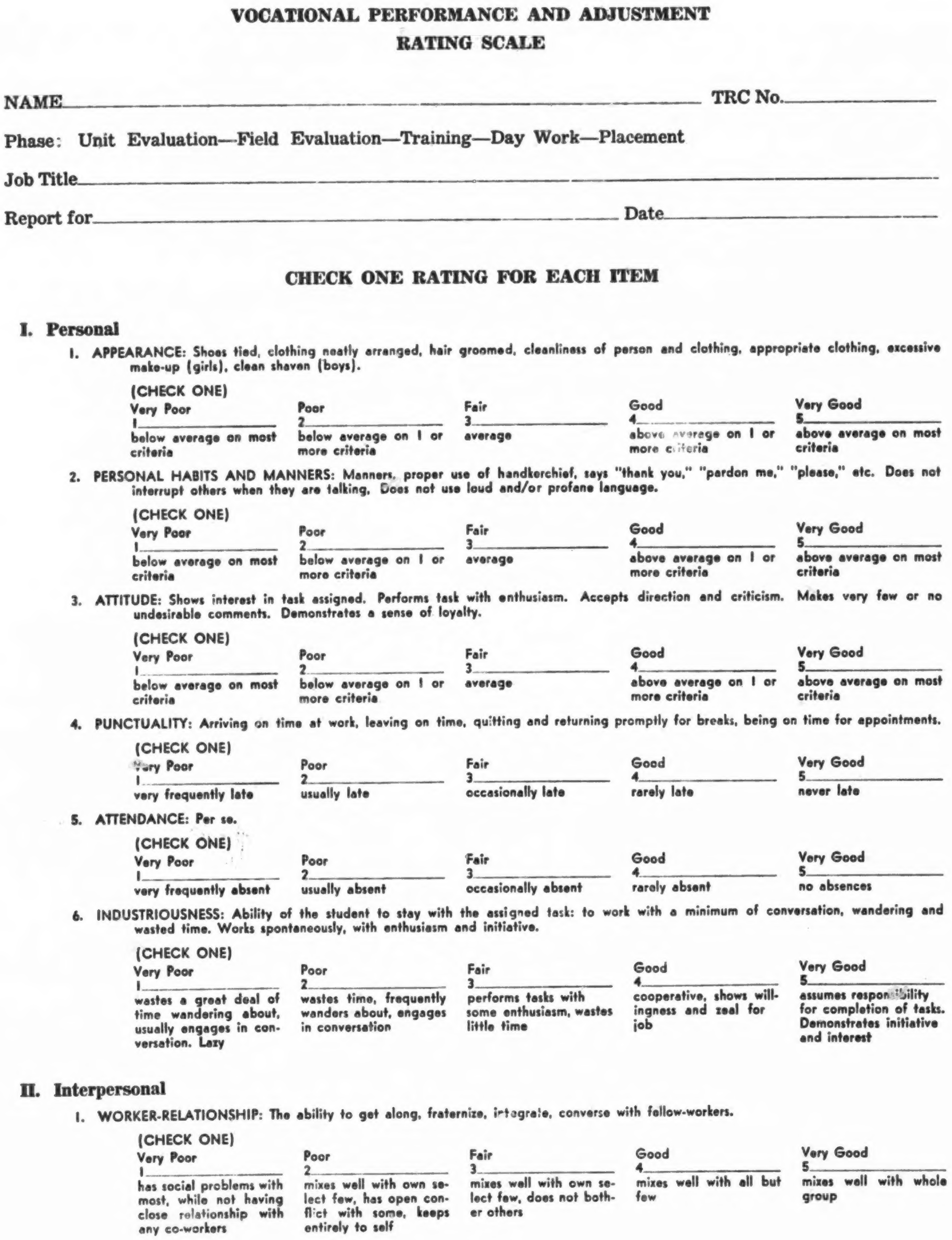
APPENDIX A-2: Legend of Abbreviations for Vocational Performance and Adjustment Rating Scale Items.

Item	Abbreviation
I. Personal	
1. Appearance	APP
2. Personal Habits and Manners	PHM
3. Attitude	ATT
4. Punctuality	PUN
5. Attendance	ATD
6. Industriousness	IND
II. Interpersonal	
1. Worker-Relationship	WKR
2. Supervisor-Relationship	SUP
3. Calmness	CLM
4. Attention	ATN
III. Job Skills	
1. Quality	QUL
2. Quantity	QUN
3. Ability to Perform Without Supervision	WOS
IV. General Estimate	GNE

APPENDIX A-3: Legend of Abbreviations for Psychological Variables and Age.

Variable	Abbreviation
Stromberg Dexterity Test (TRIAL 3)	S-3
Stromberg Dexterity Test (TRIAL 4)	S-4
Stromberg Dexterity Test (Sum of TRIALS 3 and 4)	S-T
Purdue Pegboard (Right - Preferred - Hand)	P-R
Purdue Pegboard (Left HAND)	P-L
Purdue Pegboard (Both HANDS)	P-B
Purdue Pegboard (Sum of Right, Left and Both Scores)	P-T
Purdue Pegboard (Assembly)	P-A
Crawford Small Parts Dexterity Test (PINS)	C-1
Crawford Small Parts Dexterity Test (Screws)	C-2
Heath Railwalking Test	HRW
Pennsylvania Bimanual Worksample (Assemble)	PAA
Pennsylvania Bimanual Worksample (Disassemble)	PAD
Bead Stringing 1 (Color Discrimination)	B-1
Bead Stringing 2 (Form Discrimination)	B-2
Bead Stringing 3 (Pattern Duplication)	B-3
Bennett Hand Tool Dexterity	BEN
Manifest Anxiety (Anxiety Score)	MAA
Manifest Anxiety (Lie Score)	MAL
Peabody Picture Vocabulary Test	PPV
Locus of Control	L-C
Personal Success Level of Aspiration 1	PS1
Personal Success Level of Aspiration 2	PS2
Personal Failure Level of Aspiration 3	PF1
Personal Failure Level of Aspiration 2	PF2
Competition Level of Aspiration	COM
Group Success Level of Aspiration	G-S
Group Failure Level of Aspiration	G-F
Chronological Age (in months)	AGE

APPENDIX B-1: Facsimile of Vocational Performance and Adjustment Rating Scale.



VOCATIONAL PERFORMANCE AND ADJUSTMENT RATING SCALE

NAME____ TRC No.____________

Phase: Unit Evaluation—Field Evaluation—Training—Day Work—Placement

Job Title____

Report for________________________________ Date______________

CHECK ONE RATING FOR EACH ITEM

I. Personal

1. APPEARANCE: Shoes tied, clothing neatly arranged, hair groomed, cleanliness of person and clothing, appropriate clothing, excessive make-up (girls), clean shaven (boys).

(CHECK ONE)

Very Poor	Poor	Fair	Good	Very Good
1______	2______	3______	4______	5______
below average on most criteria	below average on 1 or more criteria	average	above average on 1 or more criteria	above average on most criteria

2. PERSONAL HABITS AND MANNERS: Manners, proper use of handkerchief, says "thank you," "pardon me," "please," etc. Does not interrupt others when they are talking. Does not use loud and/or profane language.

(CHECK ONE)

Very Poor	Poor	Fair	Good	Very Good
1______	2______	3______	4______	5______
below average on most criteria	below average on 1 or more criteria	average	above average on 1 or more criteria	above average on most criteria

3. ATTITUDE: Shows interest in task assigned. Performs task with enthusiasm. Accepts direction and criticism. Makes very few or no undesirable comments. Demonstrates a sense of loyalty.

(CHECK ONE)

Very Poor	Poor	Fair	Good	Very Good
1______	2______	3______	4______	5______
below average on most criteria	below average on 1 or more criteria	average	above average on 1 or more criteria	above average on most criteria

4. PUNCTUALITY: Arriving on time at work, leaving on time, quitting and returning promptly for breaks, being on time for appointments.

(CHECK ONE)

Very Poor	Poor	Fair	Good	Very Good
1______	2______	3______	4______	5______
very frequently late	usually late	occasionally late	rarely late	never late

5. ATTENDANCE: Per se.

(CHECK ONE)

Very Poor	Poor	Fair	Good	Very Good
1______	2______	3______	4______	5______
very frequently absent	usually absent	occasionally absent	rarely absent	no absences

6. INDUSTRIOUSNESS: Ability of the student to stay with the assigned task: to work with a minimum of conversation, wandering and wasted time. Works spontaneously, with enthusiasm and initiative.

(CHECK ONE)

Very Poor	Poor	Fair	Good	Very Good
1______	2______	3______	4______	5______
wastes a great deal of time wandering about, usually engages in conversation. Lazy	wastes time, frequently wanders about, engages in conversation	performs tasks with some enthusiasm, wastes little time	cooperative, shows willingness and zeal for job	assumes responsibility for completion of tasks. Demonstrates initiative and interest

II. Interpersonal

1. WORKER-RELATIONSHIP: The ability to get along, fraternize, integrate, converse with fellow-workers.

(CHECK ONE)

Very Poor	Poor	Fair	Good	Very Good
1______	2______	3______	4______	5______
has social problems with most, while not having close relationship with any co-workers	mixes well with own select few, has open conflict with some, keeps entirely to self	mixes well with own select few, does not bother others	mixes well with all but few	mixes well with whole group

2. **SUPERVISOR-RELATIONSHIP**: The ability to fraternize, converse, integrate with the supervisors on a respectful plane.

(CHECK ONE)

Very Poor	Poor	Fair	Good	Very Good
1____	2____	3____	4____	5____
rejects supervisors completely; surly, unreasonable	shows frequent hostility in relationships	attitude variable, but somewhat positive	attempts to be pleasant and cooperative, but areas of improvement obvious	obeys directions pleasantly and to best of obvious ability

3. **CALMNESS**: Lack of excitability at changing of jobs, ability to accept changes in situation without becoming upset, being able to take directions, reprimands, suggestions without losing temper, or showing emotional outburst, or decrease in work production.

(CHECK ONE)

Very Poor	Poor	Fair	Good	Very Good
1____	2____	3____	4____	5____
generally in an excited, tense mood	very easily excited	generally shows calm attitude to situations	calm in most situations	calm in all situations

4. **ATTENTION**: The ability to respond completely to the one giving directions; the ability to center all of one's attention toward the director, or supervisor, or foreman.

(CHECK ONE)

Very Poor	Poor	Fair	Good	Very Good
1____	2____	3____	4____	5____
attention span so short as to be negligible	difficult to get attention	will pay attention if importance is stressed	usually pays close attention, some improvement possible	always pays close attention to work and directions

III. Job Skills

1. **QUALITY**: Measure of production. The work does not have to be done over and is done in an acceptable manner.

(CHECK ONE)

Very Poor	Poor	Fair	Good	Very Good
1____	2____	3____	4____	5____
work has to be done over often	will do a good job sometime	work occasionally needs repeating	does a good job most of the time	always or almost always does a good job

2. **QUANTITY**: Completes maximum amount of assigned work within a given time period.

(CHECK ONE)

Very Poor	Poor	Fair	Good	Very Good
1____	2____	3____	4____	5____
leaves most of work unfinished	will complete part of a task	task is sometimes completed	completes task most of the time	work finished in specified time

3. **ABILITY TO PERFORM WITHOUT SUPERVISION**: Synonymous with dependability. Being able to follow through on directions given; stick-to-itiveness.

(CHECK ONE)

Very Poor	Poor	Fair	Good	Very Good
1____	2____	3____	4____	5____
very unreliable	generally unreliable	reliable in some areas only	generally reliable	completely reliable in all areas

IV. General Estimate of Student

(CHECK ONE)

Very Poor	Poor	Fair	Good	Very Good
1____	2____	3____	4____	5____
shows no aptitude for task	unable to meet competitive requirements for the tasks	some ability to profit from training	has good potential for tasks with additional training	demonstrates knowledge of skills involved in the task

V. Comments

____

____

____

____

____

____

Evaluated By______________________________

APPENDIX B-2: Prevocational Unit Evaluation Tasks, Description of Task Activities and Scores Obtained.

Clerical Tasks

1. Envelope Assembly

   Insertion of a prefolded mail circular and return envelope into mailing envelope.
   Scores obtained: Units of Production

2. Adding Machine

   Using a "Resulta-9", hand operated machine to add 18 sets of addition problems beginning with a single column of four figures and increasing to six columns of eight figures.
   Scores obtained: Units and Errors

3. Counting Money

   Counting amounts of money printed on 3x5 cards. Four sets of cards, ten cards in each set. Set one-amounts under one dollar. Set two-amounts over one dollar and including cents. Set three-counting a specified amount and then subtracting a specific amount. Set four-making change from a given amount when provided with the cost of an article.
   Scores obtained: Errors

4. Stock Clerk

   Locating and extracting 18 boxes, from stock pile of 40 boxes, identified by stock number and item description on order request form and label on end of empty shoe box.
   Scores obtained: Units and Errors

5. Collating

   Collating and eight page booklet $5\frac{1}{2}$ x $2\frac{1}{2}$" and stapeling. Ten minute time limit.
   Scores obtained: Units of Production

6. Alphabetical Filing

   Alphabetical Filing of 250 3x5 cards containing names chosen at random from local telephone directory from each of the 27 filing categories.
   Scores obtained: Errors and Rating

Clerical Tasks Cont'd.

7. Mail Sorting

Sorting and inserting letters into proper mail box designated by alphabetical letters. Sorting done by first letter of addressees last name or first letter of town.
Scores obtained: Units of production and Errors

Light Industrial Tasks

1. Cable Clamp Assembly

Assembly of U bolt into aluminium cast cable clamp bracket and threading appropriate size nuts on each side of U bolt. U bolts were of 1/4" and 5/16" diameter, both fitting into appropriate size 1/8" cable clamp brackets.
Scores obtained: Units of production.

2. Carriage Bolt Assembly

Assembling proper size nuts on 5/8" and 3/4" carriage bolts.
Scores obtained: Units of production

3. Poker Chips - Tube

Packaging plastic, interlocking edge, poker chips in clear plastic tube and affixing cap. Poker chips must be counted 12 red, 24 white and 12 blue.
Scores obtained: Units and Errors

4. Poker Chips - Box

Packaging plastic, interlocking edge, poker chips in cardboard boxes using a jig to measure one stack of red, two stacks of white and one stack of blue chips.
Scores obtained: Errors

5. Screw Sorting

Sorting nine gross of wood screws of 1/2" No. 7, 1/2" No. 8, 1" No. 7, and 1/4" No. 7 into four bins with sample screw attached to proper bin.
Scores obtained: Units

6. Water Color Painting

Painting picture mimeographed on 8½" x 11" white paper using water color paints.
Scores obtained: Rating

Light Industrial Tasks Cont'd.

7. Washer Packaging

Counting 5/16" size washers into package of 10, inserting wire through center and twisting ends of wire together to complete package.
Scores obtained: Units

8. Switch Assembly

Assembly of electrical switch housing containing one metal insert to be secured by machine screw inside plastic housing and metal bracket secured to end of housing with machine screw and special washer. Assembly requires use of screwdriver.
Scores obtained: Time, Units and Errors

9. Bingo Chip Packaging

Counting 50 plastic Bingo Chips, inserting into plastic tube and affixing cap.
Scores obtained: Units

Service Tasks

1. Setting Table

Setting four place settings at table, each requiring dinner and salad plates, soup bowl, cup and saucer, desert and dinner forks, knife and soup and teaspoons.
Scores obtained: Rating

2. Making Bed

Using two sheets, pillow case and spread to make up single bed.
Scores obtained: Rating

3. Vacuum

Vacuum floor using household canister type of vacuum. Task required setting up and putting away machine.
Scores obtained: Rating

4. Floor Polisher

Polishing floor using twin brush household type of polisher.
Scores obtained: Rating

5. Sweeping

Sweeping floor using 24" push broom.
Scores obtained: Rating

Hand Tool Tasks

1. Tool Identification

   Identifying proper tools by name or pointing to tool on table when given use of tool. Nineteen tools presented and fifteen uses given.
   Scores obtained: Errors

2. Hammer

   Driving six, eight penny nails into 2x4 board using claw hammer.
   Scores obtained: Rating

3. Saw

   Cutting 5" x $\frac{1}{2}$" white pine board along designated line using cross cut saw.
   Score obtained: Rating

4. Screwdriver

   Using screwdriver to set six, 1" number 10 screws and six, 1" number six screws in white pine board. Task required starting holes with nail and hammer at designated locations on the board.
   Scores obtained: Rating

5. Coping Saw

   Cutting 90 degree arc and S shaped curve in one inch white pine board with coping saw.
   Scores obtained: Rating

6. Window Pane Installation

   Installing 8$\frac{1}{4}$" x 10" window pane in frame using glazing compound.
   Score obtained: Rating

APPENDIX B-3: Number, Mean, Sigma, Minimum and Maximum Scores for Prevocational Unit Evaluation Tasks for Male and Female Subjects.

Task	Number	Mean	Sigma	Minimum	Maximum
Clerical					
EAU	126	246.36	153.10	0.00	670.00
AMU	76	12.84	6.42	0.00	18.00
AME	72	4.92	3.69	0.00	16.00
CME	34	4.29	4.27	0.00	14.00
SCU	79	1.86	3.13	0.00	18.00
SCE	78	13.67	6.90	0.00	18.00
COU	68	29.68	16.05	1.00	83.00
AFE	41	19.29	23.01	2.00	99.00
AFG	65	2.82	1.37	0.00	5.00
MSU	101	209.66	116.86	1.00	651.00
MSE	103	10.39	15.97	0.00	99.00
Light Industry					
CCU	90	172.78	94.50	0.00	445.00
CBU	117	321.80	208.97	0.00	1026.00
PTU	100	34.79	16.87	1.00	89.00
PTE	88	4.20	6.35	0.00	30.00
PBE	94	4.36	4.68	0.00	25.00
SSU	122	118.61	344.14	0.00	1296.00
WPU	110	70.02	47.20	10.00	400.00
WPE	90	5.57	9.57	0.00	54.00
SAT	90	2551.33	1347.03	900.00	6300.00
SAU	83	13.95	4.87	0.00	26.00
SAE	81	2.62	4.47	0.00	16.00
BCU	90	43.06	43.69	7.00	300.00
WCG	78	2.30	1.17	1.00	5.00
Service					
STG	87	3.13	1.36	1.00	5.00
MBG	108	3.80	1.10	1.00	5.00
UAG	55	3.31	1.14	1.00	5.00
FPG	70	3.44	1.12	1.00	5.00
SPG	59	3.07	1.01	1.00	5.00
Hand Tools					
TIE	32	3.69	2.88	0.00	11.00
HMG	39	3.56	1.37	1.00	5.00
SWG	40	3.12	1.47	1.00	5.00
SDG	39	2.74	1.30	0.00	5.00
CSG	36	2.83	1.38	1.00	5.00
WPG	79	3.20	1.15	1.00	5.00

APPENDIX B-4: Correlations Between Unit Scores and Field Ratings During Prevocational Evaluation (Phase I). *

	MALES													FEMALES												
	A. Personal						B. Interpersonal				C. Job Skills			A. Personal						B. Interpersonal				C. Job Skills		
	APP	PHM	ATT	PUN	ATD	IND	WKR	SUP	CLM	ATN	QUL	QUN	WOS	APP	PHM	ATT	PUN	ATD	IND	WKR	SUP	CLM	ATN	QUL	QUN	WOS
Tasks																										
Clerical																										
EAU	39	32	27	41	31	34	40	28	29	31	41	40	32	31	30	40	26	34	49	38	39	37	36	43	44	41
AMU	-05	06	06	-01	05	09	10	08	01	03	04	04	09	-16	-05	-15	14	07	-27	07	10	21	-19	-14	-06	-07
AME	-24	-16	-28	04	-01	-24	-39	-22	-28	-35	-28	-27	-32	-58	-08	-28	38	42	-34	-23	-21	-09	-39	-41	-39	-44
CME	-01	-20	09	-07	-15	-20	-21	-34	-51	-23	-18	-12	-25	-81	-46	-12	-72	-08	00	00	-14	-21	-15	-05	-04	01
SCU	-05	05	02	03	-17	-05	-29	-10	-18	-14	-17	-21	-22	-45	-33	-44	05	02	41	37	35	40	38	48	48	42
SCE	-21	00	-06	-07	08	-02	06	-05	-09	-05	-18	-13	-07	-10	13	20	24	26	-01	04	09	22	03	-01	08	09
COU	51	32	44	28	25	47	46	43	50	47	47	44	46	35	04	11	-11	09	35	07	-08	02	05	18	18	11
AFE	-03	19	36	32	25	15	29	08	15	16	04	13	26	-19	-24	-08	28	15	-16	37	-08	-33	-20	-17	-07	-08
AFG	27	10	14	-05	-14	17	10	22	23	23	38	32	21	22	30	22	-05	48	40	-05	31	37	22	19	09	16
MSU	-26	-09	01	-04	-01	-09	00	-25	-21	-16	-15	-13	-15	-07	07	-03	-10	-11	-12	07	04	17	-02	-04	09	04
MSE	-44	-39	-31	-15	-17	-27	-43	-32	-16	-47	-52	-43	-44	-23	00	-07	-01	-07	-06	-04	00	-01	-10	-12	-14	-09
Light Industrial																										
CCU	42	33	38	26	27	36	34	36	45	35	38	41	36	37	31	41	05	12	54	33	34	35	37	46	49	49
CBU	27	13	26	07	10	18	30	09	12	17	23	24	15	20	27	36	38	28	28	45	39	47	35	41	44	46
PTU	15	07	08	04	01	02	13	16	19	18	29	31	24	28	09	22	04	14	41	18	07	07	23	27	27	35
PTE	18	16	10	07	11	10	10	10	13	04	04	09	04	-07	-30	-36	-09	03	-24	-28	-29	-42	-23	-30	-31	-33
PBE	-22	-21	-19	-05	-25	-16	-22	-19	-12	-32	-24	-28	-22	-12	-12	-18	-16	-18	-24	-10	-13	-18	-11	-18	-13	-22
SSU	07	08	07	05	12	15	20	11	11	08	11	10	05	-11	01	03	07	09	11	01	12	04	-03	07	00	07
WPU	18	00	-01	-08	-14	14	12	09	15	15	21	17	16	-01	17	19	25	30	28	14	19	21	19	26	25	28
WPE	-15	-11	-08	-12	-14	01	-14	-03	11	01	-13	-10	00	-05	01	-03	30	27	18	04	04	00	12	02	07	-05
SAT	-39	-36	-31	-27	-17	-28	-37	-16	-05	-35	-40	-44	-42	-39	-42	-52	-23	-23	-46	-54	-34	-50	-60	-63	-64	-65
SAU	09	-19	-07	-18	-13	-07	-08	-09	-01	-10	-03	-02	-10	26	09	15	04	05	01	06	10	08	05	20	19	28
SAE	-09	-24	42	-26	-04	-34	-28	-33	-36	-37	-30	-34	-39	10	20	10	38	40	10	03	13	07	01	15	07	07
BCU	06	-05	19	08	14	08	14	01	-03	-07	14	14	11	30	13	03	05	20	17	00	-07	05	05	05	-02	-02
WCG	15	23	34	19	12	32	39	37	39	36	42	42	42	45	33	48	26	25	46	43	37	51	40	54	47	46
Service																										
STG	23	23	30	13	07	28	42	31	33	43	40	43	39	45	32	39	18	-06	40	33	31	30	49	58	60	54
MBG	35	33	38	18	20	40	40	36	38	43	51	54	47	21	30	44	29	27	45	32	32	35	38	46	46	49
VAG	20	09	28	-08	00	15	30	21	23	29	27	36	35	27	13	18	-20	-24	13	15	02	09	32	27	31	27
FPG	25	30	30	37	23	31	41	34	47	37	45	37	49	64	58	54	20	35	47	43	36	47	48	53	54	46
SPG	37	30	27	28	23	27	42	28	25	49	49	46	48	37	54	64	13	02	49	66	33	52	73	61	64	60
Hand Tools																										
TIG	-22	-27	-17	-04	02	-16	-41	-17	-25	-21	-29	-35	-32													
HMG	29	01	09	-12	-17	10	08	07	-01	18	32	34	16													
SWG	29	38	37	20	01	36	50	36	48	53	63	62	49													
SDG	12	06	11	10	-06	13	31	16	20	28	40	42	32													
CSG	09	10	19	07	00	21	24	11	07	27	41	43	31													
WPG	42	46	42	15	12	53	55	47	50	51	55	55	57	22	04	35	-08	10	31	21	14	27	36	48	52	46

*Correlations significant at 1% level are indicated by underscoring.

APPENDIX B-5: Correlations Between Prevocational Unit Task Scores and Sums of Last Three Ratings in Phase II. *

	MALES													FEMALES												
	A. Personal						B. Interpersonal				C. Job Skills			A. Personal						B. Interpersonal				C. Job Skills		
	APP	PHM	ATT	PUN	ATD	IND	WKR	SUP	CLM	ATN	QUL	QUN	WOS	APP	PHM	ATT	PUN	ATD	IND	WKR	SUP	CLM	ATN	QUL	QUN	WOS
Tasks																										
Clerical																										
EAU	30	23	31	22	40	46	35	34	26	37	51	45	43	46	42	34	20	21	42	37	20	20	38	40	34	34
AMU	02	17	40	29	21	30	15	28	27	21	18	15	22	-40	-43	-34	-38	-27	-26	-28	-26	-46	-41	-29	-43	-40
AME	15	20	24	34	25	10	-04	25	06	-05	-07	-07	02	-54	-45	-46	-41	-50	-47	-40	-42	-41	-37	-52	-55	-52
CME	-33	-68	-44	-50	-62	-34	-40	-70	-52	-55	-56	-26	-16	-52	-01	-04	-05	-27	10	12	-35	08	-14	-46	-23	-38
SCU	-16	-09	-03	27	23	-08	-09	-10	04	-11	-24	-17	-20	-42	-33	-24	-34	-38	-38	-42	-23	-23	-39	-40	-33	-34
SCE	-32	-32	-01	-16	-11	-01	-20	-26	-11	-15	-13	-14	-13	11	-16	09	04	10	23	-16	02	-02	18	12	10	07
COU	30	47	45	28	39	48	51	39	59	61	48	49	48	40	05	11	35	40	14	33	-02	00	06	06	16	06
AFE	11	20	39	00	-01	38	20	09	23	13	18	16	16	19	39	60	-19	-05	45	30	69	53	36	58	57	64
AFG	-05	-14	-10	-10	01	-06	02	-19	02	18	13	13	07	08	-02	-21	-10	-13	-08	-33	-46	-40	-02	-19	-18	-21
MSU	17	15	38	41	42	19	26	25	33	13	16	17	19	-20	02	-08	-07	-04	-04	-05	-07	-16	-02	-08	-09	-10
MSE	-17	-08	-13	01	01	-36	-40	-30	-08	-22	-31	-28	-32	-05	15	14	28	24	30	27	34	41	34	33	31	35
Light Industrial																										
CCU	22	30	41	22	36	51	39	39	42	48	54	58	50	49	26	15	11	12	32	45	13	08	27	23	26	28
CBU	36	27	29	-06	20	28	34	30	20	29	45	43	39	41	27	21	11	16	25	43	23	10	17	31	24	24
PTU	19	19	35	-09	03	39	34	07	22	35	44	40	41	55	17	33	06	16	35	46	28	10	26	39	37	39
PTE	06	09	10	20	17	-02	-01	-01	14	-20	-21	-21	-21	28	13	38	29	27	37	14	27	16	29	32	27	28
PBE	-30	13	34	02	-01	22	15	16	07	17	30	28	18	13	09	10	44	42	11	18	20	20	02	16	18	14
SSU	-31	-04	-08	03	00	-02	05	00	-02	02	-01	-01	-03	-10	-19	-08	17	13	-02	-14	-19	01	-06	-09	00	-11
WPU	-08	-01	04	-05	14	08	-02	08	-03	08	19	14	12	08	07	12	-13	-07	26	23	07	04	24	16	13	16
WPE	-25	-26	-18	-01	-05	-39	-24	-23	-23	-30	-42	-42	-42	-04	04	15	17	14	26	19	21	20	27	21	19	21
SAT	-33	-26	-14	08	12	-35	-32	-15	-15	-28	-33	-29	-36	-45	-33	-22	-12	-21	-26	-37	-26	-13	-16	-32	-29	-29
SAU	-05	03	04	-02	07	01	-06	-03	03	-03	-06	-05	-10	13	06	01	-11	-01	-04	-01	-03	-12	-07	-04	-02	-06
SAE	01	-01	-11	-21	-20	-12	-27	-17	-19	-20	-19	-14	-14	30	31	40	51	48	45	22	30	36	42	34	42	34
BCU	-03	-09	-10	-41	-10	01	03	-12	-11	-05	09	11	10	24	-13	-06	-07	-02	-06	25	-08	-21	-04	03	-02	01
WCG	36	39	38	19	19	68	68	42	43	71	72	73	72	28	54	44	38	45	60	41	56	52	64	59	54	54
Service																										
STG	11	16	46	08	23	55	52	32	32	51	52	49	48	21	25	16	15	13	18	57	29	26	13	10	13	16
MBG	48	31	40	17	31	48	56	31	43	49	60	58	53	50	31	54	24	31	64	51	37	44	54	59	61	59
VAG	64	20	35	-05	10	47	42	27	20	47	65	66	59	21	13	24	35	32	31	63	39	47	29	26	34	33
FPG	34	42	57	29	49	63	64	51	55	61	68	58	62	54	55	65	43	49	69	69	63	57	71	63	58	64
SPG	33	25	17	-17	-12	20	29	08	15	25	30	27	24	48	62	53	39	40	70	81	73	69	72	72	64	73
Hand Tools																										
TIE	43	-41	-40	04	-04	-64	-65	-35	-36	-66	-68	-64	-66													
HMG	17	17	15	-07	00	21	23	21	11	32	24	29	30													
SWG	17	10	38	17	28	38	32	32	22	47	36	36	33													
SDG	45	37	46	04	19	58	51	35	35	60	60	54	54													
CSG	36	33	34	-05	00	43	33	28	15	48	45	43	43													
WBG	36	45	48	30	37	59	56	48	57	69	58	57	58	41	27	12	-20	-15	19	42	02	05	23	11	03	17

*Correlations significant at 1% level are indicated by underscoring.

APPENDIX B-6: Correlations Between Prevocational Unit Task Scores and Sums of Last Three Ratings in Phase III.*

MALES

Tasks	A. Personal						B. Interpersonal				C. Job Skills		
	APP	PHM	ATT	PUN	ATD	IND	WKR	SUP	CLM	ATN	QUL	QUN	WOS
Clerical													
EAU	28	34	26	-02	08	48	-06	21	23	45	36	40	32
AMU	27	35	00	-52	-35	32	43	24	00	49	53	62	60
AME	42	70	40	40	38	72	12	39	20	48	49	51	46
CME	-08	15	-42	-40	-39	41	-23	-23	-44	17	24	26	48
SCU	*												
SCE	-30	-11	-51	-12	20	-13	-45	-36	-36	-37	-34	-30	-24
COU	-16	-15	04	-06	24	-06	25	14	37	11	06	05	-18
AFE	13	-20	28	08	-29	05	01	12	-01	13	27	19	07
AFG	-57	-15	-52	-35	22	-17	01	-44	07	-36	-52	-58	05
MSU	-05	-21	13	33	43	28	13	51	27	09	35	21	26
MSE	-16	-41	10	17	22	-07	-12	-01	-44	-21	01	-12	-05
Light Industrial													
CCU	-06	-16	-11	-33	14	-07	02	-11	06	-02	-09	-08	-07
CBU	40	40	11	-24	-38	36	03	-01	21	38	19	24	26
PTU	-20	07	-38	-37	-23	-11	03	-51	-22	-10	-20	-10	-06
PTE	11	03	40	29	34	04	02	21	15	07	14	-11	18
PBE	-27	-36	-14	-11	-22	-20	23	-10	-25	-14	-09	-16	-03
SSU	-02	06	01	-32	-29	-03	19	-03	12	09	00	09	01
WPU	-08	-08	-22	-04	-22	-14	08	-40	09	00	-13	04	-07
WPE	-23	-32	-13	18	-02	-23	-22	-24	-39	-25	-17	-22	-24
SAT	-30	-37	-03	53	46	-23	-16	15	-07	-34	-13	-24	-21
SAU	-02	02	14	09	00	05	42	01	05	08	15	20	12
SAE	42	25	08	-02	-18	08	-05	-13	-20	13	03	15	18
BCU	01	-16	-01	-20	-40	12	03	-10	-13	08	09	08	05
WCG	-25	-16	-20	-28	00	-11	-24	-21	16	-14	-31	-31	-27
Service													
STG	24	27	06	-20	-53	50	-04	20	21	45	40	54	37
MBG	16	15	23	-13	-02	42	06	04	15	32	28	36	31
VAG	34	00	-34	-02	37	00	-73	-35	-35	-16	-30	-37	-20
FPG	84	55	56	32	19	55	-18	46	35	68	62	54	69
SPG	25	20	02	-50	-41	22	18	07	08	43	34	45	43
Hand Tools													
TIG	-42	-06	-33	03	25	12	-31	-14	06	-16	-13	-17	04
HMG	11	35	04	-18	-31	36	29	07	14	43	40	44	63
SWG	19	31	29	09	03	44	31	37	35	44	40	48	36
SDG	-01	19	02	-18	-04	45	-15	-03	08	28	18	22	28
CSG	36	37	10	-15	-15	36	08	10	19	41	29	43	44
WPG	32	17	00	-18	34	14	00	-10	23	25	-01	03	04

FEMALES

Tasks	A. Personal						B. Interpersonal				C. Job Skills		
	APP	PHM	ATT	PUN	ATD	IND	WKR	SUP	CLM	ATN	QUL	QUN	WOS
Clerical													
EAU	31	13	-01	02	-11	-54	40	-01	19	17	16	08	23
AMU	*												
AME	*												
CME	*												
SCU													
SCE	*												
COU	*												
AFE	*												
AFG	*												
MSU	01	12	40	12	04	26	28	23	45	50	42	33	46
MSE	04	07	37	39	40	79	-20	18	21	18	-03	-09	02
Light Industrial													
CCU	*												
CBU	37	68	55	17	15	-22	52	11	36	21	20	20	26
PTU	53	67	43	57	57	-19	52	-07	05	-12	-17	-15	-20
PTE	01	00	00	-48	-42	04	-43	-20	02	-08	04	07	07
PBE	34	32	50	-10	-08	21	26	-07	33	23	21	19	24
SSU	10	02	28	28	-07	-15	44	32	36	59	68	66	66
WPU	-14	-13	09	05	-06	06	04	-03	-11	19	19	18	26
WPE	-49	-63	-49	15	05	33	-86	-71	-77	-72	-78	-72	-73
SAT	-40	-46	09	36	36	76	-62	05	-22	-14	-22	-19	-22
SAU	-53	-62	-23	-22	09	-26	-07	24	-28	23	38	49	38
SAE	-71	-71	-20	04	37	-29	-24	06	-37	09	24	32	22
BCU	*												
WCG	*												
Service													
STG	*												
MBG	14	31	16	19	00	-31	03	-54	-19	-29	-33	-37	-24
VAG	*												
FPG	*												
SPG	*												
Hand Tools													
TIG	*												
HMG	*												
SWG	*												
SDG	*												
CSG	*												
WPG	*												

* Sample insufficient for correlational purposes.

*Correlations significant at 1% level are indicated by underscoring.

APPENDIX B-7: Correlations Between Unit Ratings and Mean Field Ratings During Prevocational Evaluation (Phase I).*

	MALES													FEMALES												
	A. Personal						B. Interpersonal				C. Job Skills			A. Personal						B. Interpersonal				C. Job Skills		
	APP	PHM	ATT	PUN	ATD	IND	WKR	SUP	CLM	ATN	QUL	QUN	WOS	APP	PHM	ATT	PUN	ATD	IND	WKR	SUP	CLM	ATN	QUL	QUN	WOS
A. Personal																										
APP	56	53	46	25	12	42	46	40	39	50	51	50	54	49	29	41	06	-01	38	39	26	40	50	53	56	60
PHM	18	36	34	26	10	29	42	29	27	28	30	27	30	18	23	26	11	07	21	20	26	31	26	26	25	29
ATT	-06	15	21	23	17	24	16	18	17	07	09	16	16	19	27	34	22	17	32	17	38	42	27	32	29	37
PUN	13	24	37	42	32	49	28	40	36	28	24	30	28	10	29	30	57	53	36	23	36	32	20	30	23	30
ATD	22	29	37	22	17	46	29	39	31	34	32	39	39	22	16	24	26	20	07	20	26	26	22	21	20	14
IND	16	30	39	25	17	39	36	36	37	34	44	48	42	33	51	58	28	22	47	41	53	62	48	51	53	55
B. Interpersonal																										
WKR	22	35	39	28	22	43	48	39	42	37	42	44	43	31	50	65	42	31	49	58	54	64	53	60	58	61
SUP	18	39	39	45	43	46	42	44	37	29	32	32	35	02	31	30	19	17	19	16	32	41	25	28	30	32
CLM	21	36	37	30	24	38	39	39	37	32	32	36	39	12	32	30	03	01	26	21	38	43	22	25	20	26
ATN	30	43	46	27	22	51	45	40	42	46	46	57	53	37	50	60	23	18	56	55	57	62	57	63	60	62
C. Job Skills																										
QUL	30	37	48	23	15	42	45	40	38	47	59	59	51	44	49	62	19	15	47	44	48	59	54	64	68	68
QUN	20	22	30	14	02	30	38	26	29	32	47	50	41	46	36	52	07	03	37	43	35	51	57	58	59	61
WOS	21	42	46	34	30	48	45	47	43	42	43	49	48	47	53	58	15	08	44	47	51	62	57	58	57	64

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*Correlations significant at 1% level are indicated by underscoring.

APPENDIX B-8: Correlations Between Prevocational Unit Ratings and Sums of Last Three Ratings in Phase II.*

	MALES													FEMALES												
	A. Personal						B. Interpersonal				C. Job Skills			A. Personal						B. Interpersonal				C. Job Skills		
	APP	PHM	ATT	PUN	ATD	IND	WKR	SUP	CLM	ATN	QUL	QUN	WOS	APP	PHM	ATT	PUN	ATD	IND	WKR	SUP	CLM	ATN	QUL	QUN	WOS
A. Personal																										
APP	42	43	38	07	03	51	45	34	44	45	51	45	47	59	40	39	35	38	34	34	42	31	30	39	38	36
PHM	27	19	15	14	07	37	30	20	21	38	33	34	38	44	47	42	53	52	55	56	42	52	53	53	45	41
ATT	03	10	25	35	43	25	16	25	31	21	26	22	29	56	53	49	48	50	63	66	46	56	59	61	52	50
PUN	-02	13	26	58	58	23	19	35	35	20	19	21	22	33	42	43	50	48	46	55	46	50	43	43	40	34
ATD	-11	-09	14	24	26	18	18	23	15	10	17	20	23	36	42	43	47	44	45	45	37	44	41	37	34	29
IND	19	06	19	22	37	35	25	23	23	32	42	40	41	49	51	50	35	35	65	57	40	52	61	60	53	53
B. Interpersonal																										
WKR	21	18	20	16	29	41	39	23	29	36	45	39	42	44	56	50	44	40	55	56	42	63	53	56	49	46
SUP	09	20	33	54	54	37	40	49	43	29	33	32	37	23	41	33	43	39	50	47	35	44	45	45	35	30
CLM	15	20	36	40	31	38	36	39	39	31	38	32	37	35	47	41	41	40	55	55	35	49	53	54	44	41
ATN	27	26	39	39	44	54	47	48	41	48	54	52	54	58	49	50	39	40	61	64	45	57	58	61	55	54
C. Job Skills																										
QUL	35	28	44	13	28	58	53	42	42	57	67	61	62	64	61	56	44	47	63	65	49	59	59	62	57	55
QUN	20	10	30	17	30	46	45	28	30	44	57	57	55	61	58	54	45	49	63	69	49	56	58	61	54	53
WOS	10	09	24	28	33	38	30	33	30	35	41	40	41	64	52	55	30	36	65	63	50	52	61	65	58	60

*Correlations significant at 1% level are indicated by underscoring.

APPENDIX B-9: Correlations Between Prevocational Unit Ratings and Sums of Last Three Ratings in Phase III.*

	MALES													FEMALES												
	A. Personal						B. Interpersonal				C. Job Skills			A. Personal						B. Interpersonal				C. Job Skills		
	APP	PHM	ATT	PUN	ATD	IND	WKR	SUP	CLM	ATN	QUL	QUN	WOS	APP	PHM	ATT	PUN	ATD	IND	WKR	SUP	CLM	ATN	QUL	QUN	WOS
A. Personal																										
APP	56	43	35	-22	-05	44	37	36	39	56	36	39	44	57	65	76	01	04	-57	40	00	12	15	31	34	27
PHM	36	20	15	05	10	14	20	35	37	23	19	24	12	-12	-29	13	03	03	-57	13	-22	-23	-01	08	07	12
ATT	36	33	55	45	41	50	41	56	42	52	55	50	32	-42	-47	-03	14	13	-66	22	-15	-17	07	19	20	23
PUN	-12	07	24	47	55	22	-05	22	13	09	14	05	-02	10	19	-21	20	07	75	18	-26	-20	-10	03	03	03
ATD	11	19	15	-03	05	11	21	25	37	16	07	08	-02	42	33	60	-07	01	-78	19	-22	-12	-06	07	01	03
IND	32	22	29	19	19	39	24	26	35	43	37	44	27	-56	-28	-17	-14	-20	-50	08	-06	-11	15	24	22	23
B. Interpersonal																										
WKR	33	24	20	00	-03	18	37	32	33	29	27	28	14	-57	-45	-37	26	20	-65	21	-18	-06	03	16	16	16
SUP	27	42	44	37	38	32	41	54	57	43	42	39	20	-47	-33	-21	-05	-30	-64	10	-15	-13	03	11	08	13
CLM	40	52	52	28	34	32	51	54	57	48	39	36	22	-56	-41	-11	16	06	-60	20	-01	-01	19	28	25	31
ATN	27	28	20	08	08	25	44	27	37	37	29	37	14	-44	-35	-06	21	08	-59	27	-10	-06	13	26	28	27
C. Job Skills																										
QUL	24	22	27	00	09	36	43	29	45	44	34	39	30	-46	-15	-25	-21	-33	-66	24	-20	-14	05	19	21	21
QUN	00	-03	15	-03	-02	18	37	09	23	24	21	28	17	03	03	24	07	-18	-55	27	-19	-16	09	19	20	25
WOS	28	24	29	17	26	29	42	36	51	40	32	35	17	26	23	01	-03	-28	-58	22	-21	-22	03	14	16	19

*Correlations significant at 1% level are indicated by underscoring.

APPENDIX B-10: Correlations Between Prevocational Mean Field Ratings and Sums of Last Three Ratings in Phase II. *

MALES

	A. Personal						B. Interpersonal				C. Job Skills		
	APP	PHM	ATT	PUN	ATD	IND	WKR	SUP	CLM	ATN	QUL	QUN	WOS
A. Personal													
APP	37	35	29	-01	03	36	30	32	26	27	33	38	31
PHM	41	42	43	21	16	59	47	47	46	54	51	56	56
ATT	42	39	47	30	31	60	53	46	50	56	52	59	59
PUN	28	39	37	42	39	47	32	43	38	41	37	38	40
ATD	22	42	32	29	30	36	28	46	34	29	30	30	29
IND	40	40	46	43	46	59	50	52	50	56	53	61	60
B. Interpersonal													
WKR	54	46	49	23	26	67	65	46	43	62	68	71	69
SUP	31	33	40	32	29	52	43	45	42	50	46	53	51
CLM	41	37	42	34	34	51	47	45	51	55	52	57	52
ATN	50	33	41	20	22	57	55	40	43	56	58	60	55
C. Job Skills													
QUL	51	33	43	24	26	58	62	43	46	56	60	64	60
QUN	47	33	43	21	26	58	53	42	42	56	58	63	60
WOS	48	37	43	20	21	62	55	45	48	57	57	61	61

FEMALES

	A. Personal						B. Interpersonal				C. Job Skills		
	APP	PHM	ATT	PUN	ATD	IND	WKR	SUP	CLM	ATN	QUL	QUN	WOS
A. Personal													
APP	59	40	39	35	38	34	34	42	31	30	39	38	36
PHM	44	47	42	53	52	55	56	42	52	53	53	45	41
ATT	56	53	49	48	50	63	66	46	56	59	61	52	50
PUN	33	42	43	50	48	46	55	46	50	43	43	40	34
ATD	36	42	43	47	44	45	45	37	44	41	37	34	29
IND	49	51	50	35	35	65	57	40	52	61	60	53	53
B. Interpersonal													
WKR	44	56	50	44	40	55	56	42	63	53	56	49	46
SUP	23	41	33	43	39	50	47	35	44	45	45	35	30
CLM	35	47	41	41	40	55	55	35	49	52	54	44	41
ATN	58	49	50	39	40	61	63	45	57	58	[illegible]	55	54
C. Job Skills													
QUL	64	61	56	44	47	63	65	49	59	59	62	57	55
QUN	61	58	54	45	49	63	69	49	56	58	61	54	53
WOS	64	52	55	30	36	65	63	50	52	61	65	58	60

*Correlations significant at 1% level are indicated by underscoring.

APPENDIX B-11: Correlations Between Prevocational Mean Field Ratings and Sums of Last Three Ratings in Phase III.*

	MALES													FEMALES												
	A. Personal						B. Interpersonal				C. Job Skills			A. Personal						B. Interpersonal				C. Job Skills		
	APP	PHM	ATT	PUN	ATN	IND	WKR	SUP	CLM	ATN	QUL	QUN	WOS	APP	PHM	ATT	PUN	ATN	IND	WKR	SUP	CLM	ATN	QUL	QUN	WOS
A. Personal																										
APP	42	46	20	-30	-30	24	34	26	30	54	34	41	48	-05	-19	-22	-44	-44	-57	40	00	12	15	31	34	27
PHM	28	48	28	14	19	23	39	40	57	49	34	37	27	-61	-47	-51	-39	-43	-57	13	-22	-23	-01	08	07	12
ATT	16	32	27	17	17	30	31	40	54	47	37	37	23	-50	-38	-29	-23	-20	-66	22	-15	-17	07	19	20	23
PUN	20	36	51	32	33	40	24	59	49	47	50	42	30	-37	-24	-28	-14	-05	-75	18	-26	-20	-10	03	03	03
ATN	13	42	29	18	21	14	04	27	39	25	11	03	-03	-41	-25	-39	-49	-13	-78	19	-22	-12	-06	07	01	03
IND	12	24	27	19	21	30	26	37	43	46	38	38	24	-49	-45	-13	15	22	-50	08	-06	-11	15	24	22	23
B. Interpersonal																										
WKR	23	29	12	-12	-10	09	12	19	33	29	13	16	04	-35	-30	-13	-02	-05	-65	21	-18	-06	03	16	16	16
SUP	10	38	27	27	30	18	33	40	53	40	30	31	21	-63	-41	-33	-10	-08	-64	10	-15	-13	03	11	08	13
CLM	04	09	19	34	29	07	21	26	31	26	18	20	12	-54	-41	-20	01	-05	-60	20	-01	-01	19	28	25	31
ATN	13	23	06	01	-04	20	19	17	35	40	26	40	23	-31	-34	-13	-08	-13	-59	27	-10	-06	13	26	28	27
C. Job Skills																										
QUL	17	28	18	01	02	29	33	27	43	50	37	49	39	-31	-31	-21	-20	-25	-66	24	-20	-14	05	19	21	21
QUN	11	24	14	-01	-08	27	37	22	37	47	34	47	32	-33	-23	-18	-29	-28	-55	27	-19	-16	09	19	20	25
WOS	22	20	15	-04	-04	24	28	26	36	47	32	41	30	-31	-25	-19	-15	-21	-58	22	-21	-22	03	14	16	19

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*Correlations significant at 1% level are indicated by underscoring.

APPENDIX B-12: Number of Significant Correlations* Between Prevocational Evaluations and Subsequent Phases of Training.

	Total Possible r	Number of Significant Correlations				
		Start Ph.II	End Ph.II	Start Ph.III	End Ph.III	End Ph.IV
Unit Task Scores						
Male	490	7	74	12	0	6
Female	420	9	34	2	4	2
Unit Ratings						
Male	156	15	51	2	12	1
Female	156	27	5	7	8	0
Field Ratings						
Male	156	26	112	0	5	9
Female	156	11	106	0	2	0

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*Significant at the .01 level or beyond.

APPENDIX C-1: Psychological Battery Variables and Types of Scores Obtained.

Variable	Score *
Stromberg Dexterity Test (Trial 3) (Stromberg, 1951)	Time
Stromberg Dexterity Test (Trial 4)	Time
Stromberg Dexterity Test (Sum of Trials 3 and 4)	Time
Purdue Pegboard (Right - preferred - hand) (Purdue Research Associates, 1948)	Number Done
Purdue Pegboard (Left hand)	Number Done
Purdue Pegboard (Both hands)	Number Done
Purdue Pegboard (Sum of Right, Left and Both hands)	Number Done
Purdue Pegboard (Assembly)	Number Done
Crawford Small Parts Dexterity Test (Pins) (Crawford & Crawford, 1956)	Time
Crawford Small Parts Dexterity Test (Screws)	Time
Heath Railwalking Test (Heath, 1942)	Distance Traversed
Pennsylvania Bimanual Worksample Test (Assembly) (Roberts, 1943)	Time
Pennsylvania Bimanual Worksample Test (Disassembly)	Time
Age	Months
Bead Stringing 1 (Color Discrimination)	Number Done
Bead Stringing 2 (Form Discrimination)	Number Done
Bead Stringing 3 (Pattern Duplication)	Time
Bennett Hand Tool Dexterity Test (Bennett, 1947)	Time
Children's Manifest Anxiety Scale (Anxiety)	Number
Children's Manifest Anxiety Scale (Lie)	Number
Peabody Picture Vocabulary Test (Dunn, 1959)	Number Correct
Locus of Control	Number
Level of Aspiration Personal Success 1	Number Reported
Level of Aspiration Personal Success 2	Number Reported
Level of Aspiration Personal Failure 1	Number Reported
Level of Aspiration Personal Failure 2	Number Reported
Level of Aspiration Competition Index	Number Reported
Level of Aspiration Group Success Index	Number Reported
Level of Aspiration Group Failure Index	Number Reported

*All time scores recorded in seconds, and converted to reciprocals prior to statistical analyses.

APPENDIX C-2: Bead Stringing Test.

This test yields three scores, the first two based on speed of performance in simple color and form discrimination tasks and the last in a pattern duplication task. It is administered individually without opportunity for practice trial.

Equipment

Sixty-four beads, 3/4 of an inch in diameter of three different shapes: cylindrical (12 red), spheroid (11 yellow, 11 green), and ovoid (16 red 14 blue); a wooden box 1 1/8 inches deep by 6 1/2 inches square to which is affixed a 26 inch metal tipped plastic lace; and a pattern model consisting of beads in the order red cylindrical, yellow spheroid, green spheroid, blue ovoid, red cylindrical, red ovoid, green spheroid, yellow spheroid and red cylindrical.

Instructions

Place board with free end of string toward subject, who is seated. "YOU SEE IN THIS BOX THERE ARE DIFFERENT SHAPES (demonstrate: cylindrical, ovoid, spheroid), AND COLORS (demonstrate: red, yellow, blue, green). THIS IS TO SEE HOW FAST YOU CAN PICK OUT THE ONES YOU ARE TOLD TO, AND PUT THEM ON THE STRING."

1. Sub-test 1.

"FIRST, PUT ALL THE RED ONES THAT YOU CAN ON THE STRING. WHEN I TELL YOU TO BEGIN, PICK UP RED ONES OF ANY SHAPE, ONE AT A TIME, AND PUT THEM ON THE STRING. WORK AS FAST AS YOU CAN. IF YOU DROP ONE, DO NOT STOP TO PICK IT UP. REMEMBER, YOU ARE USING ONLY RED ONES. READY...GO."

Allow 30 seconds. Record number on the lace, including a bead passed at least half it's length onto the metal tip. Beads of wrong color are not credited.

2. Sub-test 2.

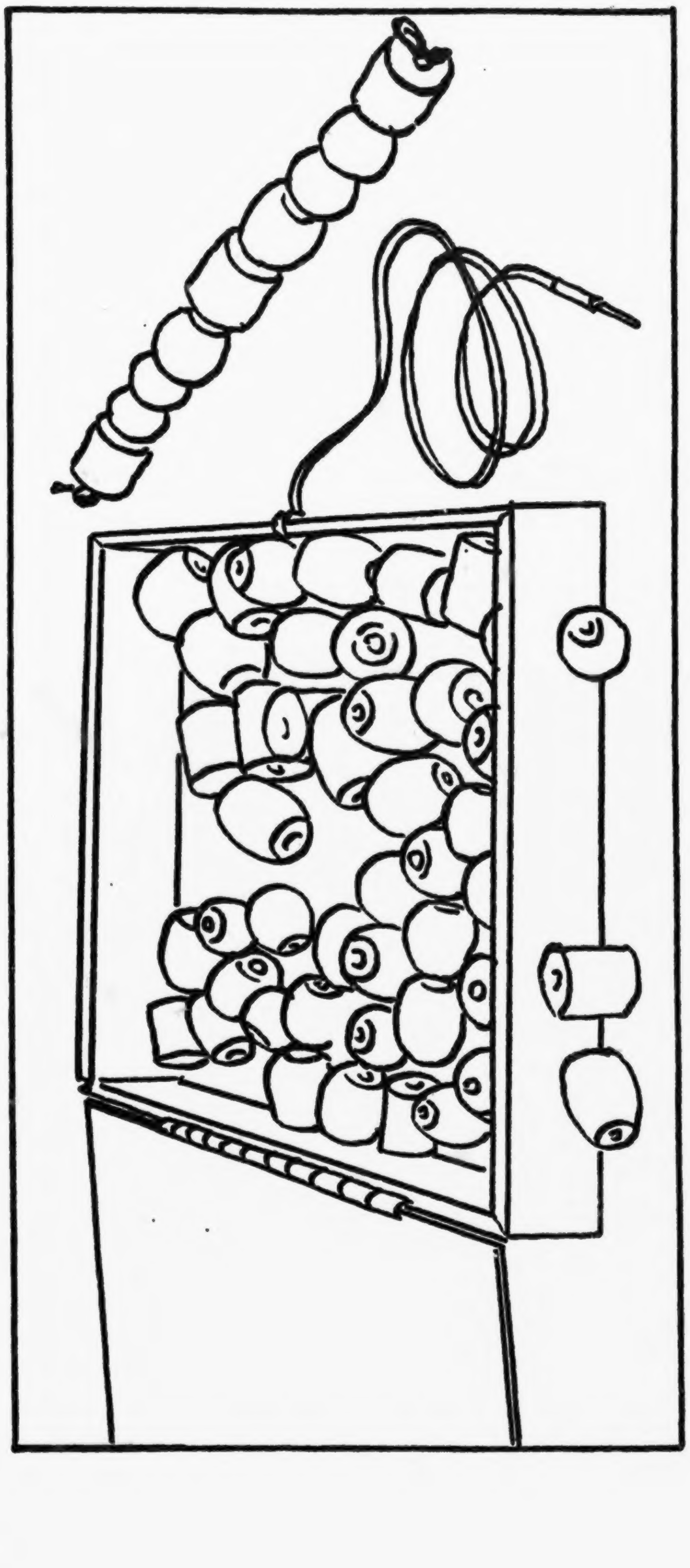
"NOW CHOOSE BEADS ONLY OF THIS SHAPE (demonstrate ovoid) OF ANY COLOR. PICK THEM UP ONE AT A TIME AND PUT THEM ON THE STRING. WORK AS FAST AS YOU CAN. READY...GO."

Allow 30 seconds. Record number of ovoid beads only, strung at least half their length.

3. Sub-test 3.

Uncover bead pattern sample. "THIS IS A LITTLE DIFFERENT. YOU HAVE TO CHOOSE THE RIGHT COLORS AND SHAPES IN THE RIGHT ORDER AND PUT THEM ON THE STRING TO MAKE A PATTERN LIKE THIS (point to sample). READY...GO."

Call S's attention to errors as they occur, referring to color or shape, but require him to select correct bead. Record time, in seconds, for completion.



APPENDIX C-3: Levels of Aspiration Tests

The levels of aspiration measures are presumed to reflect the subjects' goal setting behavior under reactions to personal and group conditions. The measures used to test reactions to experimental personal conditions yield two scores each; the first being the subject's realism index and the second the level of aspiration score. Each of the measures used to test the individual's reaction to suggested group peer standards, and one used to test the competition index yield only one score, the level of aspiration. Each level of aspiration technique is concluded with a positive closure experience.

Materials

A separate form is employed for each level of aspiration procedure. The material for each consists of paper on which is printed 6 rows of 30 characters each, with 10 target characters randomly distributed in the row. In the personal success procedure alphabetic characters are used; numeric characters are used in the personal failure procedure; geometric figures are used in the competition procedure; colored circles are used in the group success procedure; and in the group failure procedure, non-alphabetic typewriter symbols are used.

Instructions

Personal Success: "THIS IS A TEST TO SEE HOW MANY E'S YOU CAN CROSS OUT IN A GIVEN PERIOD OF TIME. AS YOU CAN SEE, DIFFERENT LETTERS OF THE ALPHABET ARE ALL MIXED UP ON THIS PAGE. NOW, I WANT TO SEE HOW MANY E'S YOU CAN CROSS OUT IN 35 SECONDS. THE MORE E'S THAT YOU CAN CROSS OUT, THE BETTER YOU HAVE DONE. DO YOU UNDERSTAND? VERY WELL, WHEN I SAY 'START' YOU BEGIN PUTTING A LINE THROUGH ALL THE E'S THAT YOU CAN FIND. READY? START!"

Allow the subject to cross out 36 E's, report this score to him, and then ask "HOW MANY WILL YOU BE ABLE TO DO NEXT TIME?"

The subject's report is recorded as the Realism Index and he is told to proceed with the second trial. The examiner permits the subject to complete six more than the Realism Index and the score is reported to him as follows:

"YOU GOT ________. THAT'S BETTER THAN YOU SAID YOU WOULD DO. HOW MANY WILL YOU DO THIS TIME?"

The subject's report is recorded as the Level of Aspiration and he is told to proceed with the third trial. For positive closure, he is permitted to do, and has reported to him, two more than his Level of Aspiration.

APPENDIX C-3: (Continued)

Personal Failure: "THIS IS A TEST TO SEE HOW MANY 5'S YOU CAN CROSS OUT IN A GIVEN PERIOD OF TIME. AS YOU CAN SEE, ALL THE NUMBERS FROM 1 TO 9 ARE MIXED UP ON THIS PAGE. NOW I WANT TO SEE HOW MANY 5'S YOU CAN CROSS OUT IN 35 SECONDS. THE MORE 5'S THAT YOU CAN CROSS OUT, THE BETTER YOU HAVE DONE. DO YOU UNDERSTAND? VERY WELL, WHEN I SAY 'START,' YOU BEGIN PUTTING A LINE THROUGH ALL THE 5'S THAT YOU CAN FIND. READY? START!"

Allow the subject to cross out 36 5's, report the score to him, and then ask "HOW MANY WILL YOU BE ABLE TO DO NEXT TIME?"

The subject's report is recorded as the Realism Index and he is told to proceed with the second trial. The examiner allows the subject to complete six fewer than the Realism Index and the score is reported as follows:

"YOU GOT ________. THAT'S NOT AS GOOD AS YOU SAID YOU WOULD DO. HOW MANY WILL YOU DO THIS TIME?"

The subject's report is recorded as the Level of Aspiration and he is told to proceed with the third trial. For positive closure, he is permitted to do, and has reported to him, two more than his Level of Aspiration.

Competition Index: "THIS IS A TEST TO SEE HOW FAST YOU CAN CROSS OUT CIRCLES. AS YOU CAN SEE, ALL THE FIGURES: TRIANGLES, SQUARES, STARS, CIRCLES, SIX-SIDED FIGURES, AND THE LONG FIGURES ARE ALL MIXED UP ON THIS PAGE. NOW, MOST OF THE OTHER STUDENTS LIKE YOURSELF WHO TOOK THIS TEST CROSSED OUT 35 CIRCLES. HOW MANY DO YOU THINK YOU CAN CROSS OUT IN 35 SECONDS? DO YOU UNDERSTAND?"

Record the subject's response as his Level of Aspiration and then say: "VERY WELL, WHEN I SAY 'START,' YOU BEGIN BY PUTTING A LINE THROUGH ALL THE CIRCLES THAT YOU CAN FIND. READY? START!"

A positive closure experience is given the subject by allowing him to complete, and reporting to him, performance of two more than the Level of Aspiration.

Group Success: "THIS IS A TEST TO SEE HOW FAST YOU CAN CROSS OUT BLUE CIRCLES. AS YOU CAN SEE, SIX DIFFERENT COLORED CIRCLES ARE MIXED UP ON THIS PAGE. NOW, I WANT TO SEE HOW MANY BLUE CIRCLES YOU CAN CROSS OUT IN 35 SECONDS. THE MORE YOU CAN CROSS OUT, THE BETTER YOU WILL DO. DO YOU UNDERSTAND? VERY WELL, WHEN I SAY 'START,' YOU BEGIN BY PUTTING LINES THROUGH ALL THE BLUE CIRCLES THAT YOU CAN FIND."

Allow the subject to cross out 43 blue circles and say, "THAT TIME YOU CROSSED OUT 43 BLUE CIRCLES. MOST STUDENTS ARE ABLE TO GET ONLY 37, SO YOU DID BETTER THAN MOST STUDENTS. HOW MANY DO YOU THINK YOU WILL BE ABLE TO GET THIS TIME?"

Record the answer obtained as the Level of Aspiration.

A positive closure experience is given the subject by allowing him to complete, and reporting to him, performance of two more than the Level of Aspiration.

Group Failure: "THIS IS A TEST TO SEE HOW FAST YOU CAN CROSS OUT THESE STARS (point to asterisks). AS YOU CAN SEE, THERE ARE MANY OTHER SYMBOLS AND THEY ARE MIXED UP ON THIS PAGE. NOW, I WANT TO SEE HOW MANY STARS (asterisks) YOU CAN CROSS OUT IN 35 SECONDS. THE MORE YOU CAN CROSS OUT, THE BETTER YOU WILL DO. DO YOU UNDERSTAND? VERY WELL, WHEN I SAY 'START,' YOU BEGIN BY PUTTING LINES THROUGH ALL THE STARS (asterisks) THAT YOU CAN FIND."

Allow the subject to cross out 31 asterisks and say, "THAT TIME YOU CROSSED OUT 31 STARS (asterisks). MOST STUDENTS ARE ABLE TO DO 37, SO YOU DID NOT DO AS WELL AS MOST STUDENTS. HOW MANY DO YOU THINK YOU WILL BE ABLE TO GET THIS TIME?"

Record the answer obtained as the Level of Aspiration.

A positive closure experience is given the subject by allowing him to complete, and reporting to him, performance of two more than the Level of Aspiration.

APPENDIX C-4: Locus of Control Scale.

For use in this study, slight modifications were made in Bialer's (1961) instructions. In addition, because it usually was not comprehended by subjects in the first year of data collection, item 11p was eliminated in the second and subsequent years of the study.

The test was administered individually with oral presentation by examiner and oral response by the subject.

Instructions

"THIS IS NOT A TEST. I AM JUST TRYING TO FIND OUT HOW PEOPLE YOUR AGE THINK ABOUT CERTAIN THINGS. I AM GOING TO ASK YOU SOME QUESTIONS TO SEE HOW YOU FEEL ABOUT THESE THINGS. THERE ARE NO RIGHT OR WRONG ANSWERS TO THESE QUESTIONS. SOME PEOPLE SAY 'YES' AND SOME SAY 'NO'. WHEN I ASK THE QUESTION, IF YOU THINK YOUR ANSWER SHOULD BE YES, OR MOSTLY YES, SAY 'YES'. IF YOU THINK THE ANSWER SHOULD BE NO, OR MOSTLY NO, SAY 'NO'. REMEMBER, DIFFERENT PEOPLE GIVE DIFFERENT ANSWERS, AND THERE IS NO RIGHT OR WRONG ANSWER. JUST SAY 'YES' OR 'NO', DEPENDING ON HOW YOU THINK THE QUESTION SHOULD BE ANSWERED. IF YOU WANT ME TO REPEAT A QUESTION, ASK ME. DO YOU UNDERSTAND? ALL RIGHT, LISTEN CAREFULLY, AND ANSWER 'YES' OR 'NO'."

When administered to a subject in retest the above was prefaced by: "YOU'VE ANSWERED THESE QUESTIONS BEFORE, BUT I'D LIKE YOU TO DO THEM AGAIN. IT WON'T TAKE LONG".

Items

1p. When somebody gets mad at you, do you usually feel there is nothing you can do about it?
2f. Do you really believe a student can be whatever he (she) wants to be?
3f. When people are mean to you, could it be because you did something to make them be mean?
4f. Do you usually make up your mind about something without asking someone first?
5f. Can you do anything about what is going to happen tomorrow?
6f. When people are good to you, is it usually because you did something to make them be good?
7f. Can you ever make other people do things you want them to do?
8f. Do you ever think that people your age can change things that are happening in the world?
9f. If another student was going to hit you, could you do anything about it?
10f. Can a person your age ever have his (her) own way?
11p. Is it hard for you to know why some people do certain things? (See introductory comment).

APPENDIX C-4: (Continued)

12f. When someone is nice to you, is it because you did the right things?
13f. Can you ever try to be friends with another person even if he (she) doesn't want to?
14f. Does it ever help any to think about what you will be when you get out?
15f. When someone gets mad at you, can you usually do something to make him (her) your friend again?
16f. Can people your age ever have anything to say about where they are going to live?
17f. When you get in an argument, is it sometimes your fault?
18p. When nice things happen to you, is it only good luck?
19p. Do you often feel you get punished when you don't deserve it?
20f. Will people usually do things for you if you ask them?
21f. Do you believe a student can usually be whatever he (she) wants to be when he (she) grows up?
22p. When bad things happen to you, is it usually someone else's fault?
23f. Can you ever know for sure whey some people do certain things?

Scoring

"Yes" response to each "f" item receives score of 1; "No" response receives score of 0.

"No" response to each "p" item receives score of 1; "Yes" response receives score of 0.

Score is summed without regard to type of item from which obtained.

APPENDIX C-5: Distribution of Characteristics for Males and Females, by Year, Based on Psychological Test Battery.

Tests	Year One				Year Two				Year Three				Year Four			
	Mean	Sigma	Min	Max	Mean	Sigma	Min	Max	Mean	Sigma	Min	Max	Mean	Sigma	Min	Max
S-3	81.5	21.74	29	123	84.5	21.04	31	135	88.2	22.08	32	143	89.7	20.40	32	133
S-4	87.1	21.14	41	135	89.4	19.99	42	143	91.2	20.24	42	154	94.4	21.85	58	164
S-T	42.0	10.51	18	63	43.5	10.14	19	68	44.6	10.29	20	71	45.7	10.31	21	74
P-R	12.9	2.30	8	18	13.3	2.32	8	20	13.3	2.26	8	19	13.4	2.29	9	20
P-L	12.5	2.31	6	18	12.3	2.48	0	19	12.7	2.00	7	18	12.5	2.48	5	17
P-B	9.6	1.91	4	15	9.8	2.04	2	15	10.1	2.11	5	16	9.8	2.22	3	15
P-T	35.0	5.70	20	49	35.4	5.90	13	52	36.1	5.56	21	52	35.7	6.14	21	49
P-A	24.8	7.00	11	45	24.0	6.91	6	38	25.1	6.90	6	42	24.0	7.47	10	42
C-1	22.2	7.59	9	45	22.2	7.95	4	46	22.9	7.02	8	42	22.5	7.11	8	46
C-2	10.7	3.96	4	21	9.8	3.59	3	20	12.5	4.28	3	24	13.5	4.33	6	26
HRW	110.6	34.30	0	153	115.2	33.48	19	153	108.9	39.65	18	153	119.0	33.86	53	153
PAA	38.6	10.61	16	68	39.4	10.65	16	72	40.1	10.89	20	69	42.4	11.90	17	70
PAD	75.7	22.40	11	130	76.1	20.65	34	135	84.0	26.12	11	208	90.0	22.95	41	141
B-1	9.9	2.31	5	15	10.3	2.10	6	16	10.4	2.46	4	16	9.9	2.37	4	17
B-2	10.0	2.46	4	18	10.1	2.28	3	16	10.4	2.44	4	17	10.0	2.21	6	16
B-3	30.8	10.14	5	50	30.4	9.57	2	50	32.1	11.54	14	99	29.1	9.49	4	50
BEN	12.6	3.98	1	24	12.2	3.54	5	26	13.2	3.65	6	24	13.8	3.71	8	24
MAA	13.6	7.37	1	33	12.0	7.65	0	32	12.7	7.87	0	32	13.0	8.03	0	32
MAL	5.1	2.86	0	11	5.6	2.70	0	10	5.7	2.72	0	11	5.8	2.78	0	10
PPV	71.8	12.18	47	110	72.8	12.53	14	108	73.4	13.18	30	126	72.6	11.26	54	105
L-C	12.4	3.29	3	19	11.9	2.59	5	17	12.6	3.07	3	19	11.8	3.42	4	19
PS1	36.3	9.88	4	99	37.8	13.54	5	99	41.5	16.93	7	99	41.7	14.90	0	97
PS2	43.5	14.08	3	90	45.2	17.14	3	99	51.6	18.21	12	99	48.8	17.54	9	99
PF1	38.0	12.1	5	80	40.2	14.44	9	90	40.7	13.83	10	99	39.6	12.97	2	99
PF2	33.3	15.83	4	85	36.8	16.20	0	90	39.7	18.60	5	99	38.3	16.38	3	99
COM	35.4	14.77	5	99	34.6	12.03	6	90	40.4	17.26	9	99	37.2	14.86	4	99
G-S	43.6	14.30	0	99	43.3	11.78	9	90	45.6	13.43	20	99	46.9	15.19	4	99
G-F	38.0	12.37	3	91	37.2	8.83	9	70	38.5	13.22	10	99	42.0	14.99	27	99
AGE	218.9	23.24	183	278	223.0	22.39	189	285	223.3	21.71	193	290	231.8	19.74	205	302
N				132				127				129				73

APPENDIX C-6: Intercorrelations of Psychological Tests, Including Age for Male Subjects.*

	S-3	S-4	S-T	P-R	P-L	P-B	P-T	P-A	C-1	C-2	HRW	PAA	PAD	AGE	B-1	B-2	B-3	BEN	MAA	MAL	PPV	L-C	PS1	PS2	PF1	PF2	COM	G-S
S-4	88																											
S-T	96	95																										
P-R	57	58	56																									
P-L	40	44	42	56																								
P-B	54	54	53	63	73																							
P-T	57	59	57	83	89	90																						
P-A	69	71	72	64	67	74	78																					
C-1	45	53	51	44	41	39	47	49																				
C-2	43	40	42	49	44	52	55	56	64																			
HRW	43	48	45	52	42	50	55	52	33	33																		
PAA	48	48	49	50	47	56	58	61	47	59	39																	
PAD	40	30	36	34	31	40	39	48	29	48	28	48																
AGE	-16	-19	-20	-14	-13	-12	-15	-20	-17	-07	-07	04	06															
B-1	58	55	57	58	60	63	70	65	38	53	38	53	30	-26														
B-2	58	52	55	58	53	64	64	59	29	41	34	53	28	-16	76													
B-3	48	41	45	31	24	39	36	37	22	28	33	26	22	-03	46	44												
BEN	51	52	52	44	50	51	56	59	51	57	39	59	42	-03	55	50	27											
MAA	14	11	11	-05	04	00	00	03	05	01	-06	-03	-10	-07	08	02	05	-05										
MAL	-40	-42	-40	-40	-40	-36	-44	-47	-33	-32	-42	-36	-30	10	-50	-46	-45	-44	-15									
PPV	19	25	20	24	26	23	28	33	37	29	33	21	15	-12	28	15	18	37	-07	-46								
L-C	04	06	03	-04	10	05	05	07	-01	05	24	14	13	09	03	10	12	11	06	-12	07							
PS1	04	08	08	-05	08	06	05	08	18	10	06	-05	07	-07	10	-03	12	02	12	-06	13	-04						
PS2	13	14	15	-07	07	08	04	14	21	14	02	-01	14	00	04	-02	16	12	10	-08	16	-03	71					
PF1	-05	-02	04	-06	-05	-06	-05	-08	-02	-09	12	-13	01	13	-06	-14	04	-09	-02	-01	15	-15	52	40				
PF2	03	04	03	-01	-09	-05	-05	-04	-01	-04	07	-04	01	12	-02	-13	07	-11	05	06	06	-05	32	31	80			
COM	06	08	06	05	02	01	03	00	17	02	07	06	08	-07	01	-09	05	-17	06	07	-04	-04	25	35	46	54		
G-S	10	11	09	10	06	04	08	00	10	-04	19	06	06	00	06	01	14	-04	04	-11	02	-06	29	32	47	44	61	
G-F	-02	-01	-03	07	01	02	02	00	24	05	-05	00	10	02	-03	-04	-01	-21	03	10	04	-25	32	41	46	56	64	57

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*N varied from 111 to 140 for pairs of variables. Correlations significant at 1% level are indicated by underscoring.

APPENDIX C-7: Intercorrelations of Psychological Tests, Including Age, for Female Subjects.*

	S-3	S-4	S-T	P-R	P-L	P-B	P-T	P-A	C-1	C-2	HRW	PAA	PAD	AGE	B-1	B-2	B-3	BEN	MAA	MAL	PPV	L-C	PS1	PS2	PF1	PF2	COM	G-S
S-4	88																											
S-T	98	95																										
P-R	41	57	49																									
P-L	54	57	57	62																								
P-B	52	58	55	61	65																							
P-T	56	66	61	47	88	84																						
P-A	62	69	66	59	63	51	67																					
C-1	61	61	63	40	50	33	48	58																				
C-2	43	40	43	28	43	37	41	34	57																			
HRW	41	39	41	30	49	19	39	39	48	44																		
PAA	60	54	59	36	63	58	60	49	58	63	43																	
PAD	55	58	58	43	51	52	56	51	51	44	35	75																
AGE	00	-02	-01	00	-08	-14	-08	-11	-08	-19	-07	-18	-08															
B-1	65	61	64	47	70	52	65	65	59	56	52	67	59	-01														
B-2	60	59	61	40	54	48	54	54	64	50	46	56	58	01	82													
B-3	53	47	51	29	42	38	42	30	39	35	31	49	48	04	52	55												
BEN	67	60	63	40	57	38	53	57	68	65	49	72	63	-08	75	67	46											
MAA	03	07	04	02	-01	03	01	00	-02	03	10	00	02	-06	-05	-19	-21	06										
MAL	-32	-20	-27	-30	-48	-30	-42	-39	-26	-23	-43	-43	-31	12	-44	-29	-36	-38	-17									
PPV	32	30	32	17	16	-02	13	23	24	12	15	10	02	-02	27	17	19	22	-20	-05								
L-C	19	17	18	27	21	29	29	15	09	13	07	21	24	04	15	12	09	10	14	-25	17							
PS1	-22	-05	-17	-05	-03	04	-02	-07	01	12	-14	-09	-16	-08	-09	-04	-05	-08	-09	19	00	00						
PS2	-07	08	-02	03	00	12	05	-01	04	14	-03	-04	-10	-14	-02	10	09	-07	-12	19	16	16	69					
PF1	00	01	-01	00	-02	00	-01	-10	-05	01	09	01	-16	-13	02	-01	00	-08	-13	14	17	-03	36	40				
PF2	-07	-04	-07	-01	-01	-10	-04	-12	-05	13	10	-09	-24	-06	00	05	-04	-03	02	13	23	-07	40	50	73			
COM	06	10	08	05	-02	00	-03	06	10	21	18	-09	01	-18	-08	04	-03	02	-11	23	-17	-15	38	35	33	35		
G-S	03	05	02	10	17	17	17	20	07	18	08	01	-01	-10	09	04	04	16	-06	12	02	11	43	35	19	29	49	
G-F	-08	-08	-08	-04	-08	-11	-08	-15	-12	-23	-02	-12	-24	06	-10	-16	-18	-14	11	10	18	05	-15	-10	48	32	14	09

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* N varied from 57 to 71 for pairs of variables. Correlations significant at 1% level are indicated by underscoring.

APPENDIX C-8: Reliabilities of Psychological Variables Determined by Test-Retest of Males and Females for One, Two, and Three Years.

PF2

		Years		
Years		2	3	4
1	r	43	10	09
	N	83	57	35
	P	001	NS	NS
2	r		27	38
	N		78	35
	P		05	05
3	r			46
	N			70
	P			001

COM

		Years		
Years		2	3	4
1	r	45	46	36
	N	78	53	32
	P	001	001	05
2	r		33	34
	N		73	34
	P		01	NS
3	r			55
	N			69
	P			001

G-S

		Years		
Years		2	3	4
1	r	36	19	54
	N	77	53	35
	P	01	NS	01
2	r		19	26
	N		71	34
	P		NS	NS
3	r			20
	N			70
	P			NS

G-F

		Years		
Years		2	3	4
1	r	49	57	22
	N	76	49	34
	P	001	001	NS
2	r		35	32
	N		67	35
	P		01	NS
3	r			45
	N			69
	P			001

L-C

		Years		
Years		2	3	4
1	r	47	44	50
	N	84	54	37
	P	001	001	01
2	r		52	59
	N		69	36
	P		001	001
3	r			43
	N			72
	P			001

PS1

		Years		
Years		2	3	4
1	r	14	21	26
	N	90	62	32
	P	NS	NS	NS
2	r		19	02
	N		82	32
	P		NS	NS
3	r			17
	N			67
	P			NS

PS2

		Years		
Years		2	3	4
1	r	31	32	16
	N	90	62	32
	P	01	NS	NS
2	r		25	35
	N		82	32
	P		05	05
3	r			15
	N			67
	P			NS

PF1

		Years		
Years		2	3	4
1	r	31	16	06
	N	83	57	35
	P	01	NS	NS
2	r		34	17
	N		78	35
	P		01	NS
3	r			59
	N			70
	P			001

BEN

		Years		
Years		2	3	4
1	r	75	79	63
	N	88	61	37
	P	001	001	001
2	r		73	61
	N		83	37
	P		001	001
3	r			70
	N			73
	P			001

MAA

		Years		
Years		2	3	4
1	r	75	70	62
	N	83	60	34
	P	001	001	001
2	r		80	45
	N		80	35
	P		001	NS
3	r			73
	N			71
	P			001

MAL

		Years		
Years		2	3	4
1	r	70	75	75
	N	81	59	34
	P	001	001	001
2	r		71	73
	N		79	35
	P		001	001
3	r			70
	N			71
	P			001

PPV

		Years		
Years		2	3	4
1	r	71	77	80
	N	83	56	37
	P	001	001	001
2	r		82	90
	N		73	37
	P		001	001
3	r			87
	N			71
	P			001

PAD

		Years		
Years		2	3	4
1	r	51	52	66
	N	12	61	35
	P	001	001	001
2	r		47	73
	N		80	35
	P		001	001
3	r			57
	N			71
	P			001

B-1

		Years		
Years		2	3	4
1	r	75	67	68
	N	83	52	34
	P	001	001	001
2	r		68	78
	N		69	34
	P		001	001
3	r			70
	N			68
	P			001

B-2

		Years		
Years		2	3	4
1	r	56	62	65
	N	82	52	34
	P	001	001	001
2	r		68	61
	N		68	33
	P		001	001
3	r			67
	N			39
	P			001

B-3

		Years		
Years		2	3	4
1	r	73	64	58
	N	83	52	34
	P	001	001	001
2	r		56	67
	N		69	34
	P		001	001
3	r			37
	N			69
	P			01

C-1

		Years		
Years		2	3	4
1	r	56	52	61
	N	90	62	37
	P	001	001	001
2	r		69	57
	N		83	37
	P		001	001
3	r			63
	N			73
	P			001

C-2

		Years		
Years		2	3	4
1	r	54	62	45
	N	90	62	37
	P	001	001	01
2	r		59	54
	N		83	37
	P		001	001
3	r			68
	N			73
	P			001

HRW

		Years		
Years		2	3	4
1	r	60	58	57
	N	84	55	34
	P	001	001	001
2	r		68	39
	N		72	34
	P		001	05
3	r			61
	N			69
	P			001

PAA

		Years		
Years		2	3	4
1	r	64	64	76
	N	84	61	35
	P	001	001	001
2	r		69	70
	N		80	35
	P		001	001
3	r			75
	N			71
	P			001

P-L

		Years		
Years		2	3	4
1	r	65	63	67
	N	90	60	37
	P	001	001	001
2	r		71	70
	N		81	37
	P		001	001
3	r			63
	N			73
	P			001

P-B

		Years		
Years		2	3	4
1	r	80	73	83
	N	90	60	37
	P	001	001	001
2	r		75	85
	N		81	37
	P		001	001
3	r			76
	N			73
	P			001

P-T

		Years		
Years		2	3	4
1	r	84	84	80
	N	89	60	37
	P	001	001	001
2	r		81	81
	N		81	37
	P		001	001
3	r			73
	N			73
	P			001

P-A

		Years		
Years		2	3	4
1	r	70	74	75
	N	90	60	37
	P	001	001	001
2	r		76	74
	N		81	37
	P		001	001
3	r			71
	N			73
	P			001

S-3

		Years		
Years		2	3	4
1	r	88	85	82
	N	90	60	37
	P	001	001	001
2	r		82	78
	N		81	37
	P		001	001
3	r			839
	N			73
	P			001

S-4

		Years		
Years		2	3	4
1	r	83	83	74
	N	90	60	37
	P	001	001	001
2	r		83	60
	N		81	37
	P		001	001
3	r			72
	N			73
	P			001

S-T

		Years		
Years		2	3	4
1	r	89	89	83
	N	90	60	37
	P	001	001	001
2	r		86	73
	N		81	37
	P		001	001
3	r			81
	N			73
	P			001

P-R

		Years		
Years		2	3	4
1	r	67	69	60
	N	90	60	37
	P	001	001	001
2	r		63	62
	N		81	37
	P		001	001
3	r			52
	N			73
	P			001

APPENDIX C-9: Correlations of Psychological Tests Including Age With Prevocational Unit Tasks for Males.*

	CLERICAL											LIGHT INDUSTRIAL													SERVICE					HAND TOOLS					
	EAU	AMU	AME	CME	SCU	SCE	COU	AFE	AFR	MSU	MSE	CCU	CBU	PTU	PTE	PBE	SSU	WFU	WFE	SAT	SAU	SAE	BCU	WCR	STR	MBR	VAR	FPR	SPR	TIR	HMR	SWR	SDR	CSR	WFR
S-3	42	52	40	29	25	-10	32	-01	26	13	-25	39	42	57	07	03	07	23	-51	-39	14	-22	39	48	56	55	46	20	43	-35	34	35	55	20	37
S-4	32	40	-50	23	15	-16	29	-04	36	10	-13	35	31	54	01	03	-06	20	-52	-37	11	-15	36	53	50	54	44	13	37	-43	32	31	48	13	43
S-T	37	48	-45	27	21	-14	32	-02	31	16	-21	39	39	57	05	02	00	19	-52	37	18	-21	39	51	56	56	47	19	43	-38	33	35	54	18	41
P-R	31	31	-31	-49	32	-35	33	14	17	-17	-06	46	24	46	06	-28	07	43	-18	23	28	00	14	35	35	45	45	35	03	-61	43	32	37	48	57
P-L	34	23	-52	-44	06	-45	19	11	17	-23	-15	32	37	35	-07	-08	15	17	-28	-64	13	-08	17	52	19	35	35	07	15	-53	10	07	52	26	42
P-B	28	25	-45	-68	07	-31	35	-22	59	-30	-10	40	21	41	-13	-19	14	32	-25	-52	32	-20	-05	62	25	58	29	14	17	-47	13	21	40	16	56
P-T	36	30	-50	-67	14	-44	33	-01	35	-27	-12	44	32	45	-07	-18	14	32	-30	-57	28	-12	10	58	29	51	40	20	15	-59	20	20	52	31	57
P-A	30	24	-49	-57	-06	-45	35	18	29	-26	-26	32	31	62	-09	-22	05	32	-43	-57	31	-11	20	57	46	59	39	40	47	-62	15	32	55	46	58
C-1	16	21	-14	-50	14	-15	21	-19	35	04	00	48	26	27	-07	-03	12	04	-14	-14	07	-04	-06	50	11	40	13	04	-07	-51	32	07	23	19	50
C-2	21	29	-23	-31	29	-14	37	-18	61	-21	-15	57	32	60	-30	-10	28	05	-10	-35	11	-25	04	63	47	53	35	26	-02	-46	25	34	53	39	64
HRW	17	09	-38	-59	-09	-40	40	-34	61	-22	-10	20	17	30	-26	-23	01	18	-06	-13	09	14	04	33	23	43	23	17	23	-33	47	45	17	27	51
PAA	29	24	-29	-17	06	-17	36	-26	35	-06	-34	34	51	48	13	-13	05	10	-31	-32	02	-21	16	41	40	57	40	20	05	-46	32	32	43	47	61
PAD	22	-16	-43	-39	-15	-30	57	-09	40	-24	-33	32	32	53	-26	-30	17	20	-23	-35	05	-34	12	60	38	41	36	38	37	-35	37	47	55	55	50
B-1	27	58	-19	-17	40	-17	32	-05	36	-02	-20	34	27	32	-18	08	20	32	-07	-47	13	-34	01	46	34	34	49	32	33	-41	38	49	50	50	32
B-2	34	57	-30	-14	36	-10	27	-01	53	-08	-33	37	29	17	-07	-19	28	51	-14	-25	19	-30	02	47	40	35	34	05	09	-22	55	48	56	31	37
B-3	44	48	-27	-27	47	05	41	-10	57	-10	-39	46	34	42	01	-17	14	23	-27	-31	14	-19	-03	55	36	62	27	16	17	-31	27	53	51	20	43
BEN	17	27	-40	-40	14	-33	21	-38	51	-05	-19	27	45	64	-28	25	05	05	-28	-40	31	-20	28	42	37	46	59	12	00	-66	40	46	54	57	41
MAA	00	-11	-17	30	21	02	-08	-11	12	10	-18	-02	-08	-02	08	36	34	-19	-05	-03	-07	-06	22	08	18	-28	-23	-14	-06	19	-11	-08	-01	-03	-11
MAL	-12	-20	20	27	01	31	-17	32	-19	12	36	-10	-15	-30	15	35	-02	-27	19	22	-14	-01	-13	-20	-14	-27	-43	-20	-36	02	-39	-25	-31	-58	-34
PPV	-15	04	-26	-84	-20	-51	00	-04	01	-12	01	-16	-06	22	-22	-15	-05	06	-14	-23	09	20	-13	06	-02	08	05	33	22	-51	07	-03	-06	29	27
L-C	26	29	-18	-24	12	07	39	-19	63	02	-39	16	35	23	-10	-13	23	17	-18	-09	-33	15	21	31	40	29	-03	22	31	10	39	35	40	11	08
PS1	-08	-19	-22	-14	20	-22	07	31	-11	-26	-01	30	03	05	-17	14	19	07	30	-31	-46	-18	04	44	-06	-05	-23	20	16	-27	-10	-13	-09	-04	05
PS2	06	-08	-17	05	26	-20	-10	15	-04	-13	-13	19	17	07	-12	03	23	03	-32	-45	-15	03	06	32	-02	20	-23	10	11	-32	-03	-14	-14	-03	01
PF1	-15	-38	03	-31	01	-12	-03	-25	-23	-20	35	09	-13	-19	05	02	-11	-03	12	19	-21	28	-05	-09	-49	-24	-30	10	04	-08	-22	-27	-50	-20	-10
PF2	-03	-30	07	09	05	-19	-20	02	-33	-11	28	-04	-13	-34	-01	03	05	-17	-30	08	-01	17	-04	-02	-39	-10	-43	-02	06	-10	-07	-19	-49	-15	-25
COM	-04	-37	00	24	05	08	-05	-21	01	-14	19	12	09	-04	06	-13	-03	-24	-21	-05	-14	25	07	22	-26	34	-23	-15	-05	-04	00	-10	-04	-23	-12
G-S	09	-33	-04	-09	23	-18	12	-12	-12	-29	-34	-08	15	-07	10	08	02	-04	00	00	-07	19	14	05	-22	22	-28	06	10	-07	08	27	-02	04	-09
G-F	-10	-33	-19	26	06	-12	-18	-02	-08	-14	-05	04	-01	-32	15	-11	25	-20	-06	-13	-05	12	-02	02	-15	-04	-41	-40	-30	-04	04	-13	-15	-10	11
AGE	-04	01	-08	05	-01	13	05	-46	36	-06	-10	-08	-04	-14	-28	02	23	-21	-10	29	00	-01	-16	-12	20	-05	-03	-14	-20	37	10	-01	02	02	-06

*Correlations significant at 1% level are indicated by underscoring.

APPENDIX C-10: Correlations of Psychological Tests Including Age with Prevocational Unit Tasks for Females.*

	CLERICAL											LIGHT INDUSTRIAL												SERVICE					HAND TOOLS					
	EAU	AMU	AME	CME	SCU	SCE	COU	AFE	AFR	MSU	MSE	CCU	CFU	PTU	PTE	PBE	SSU	VPU	WPE	SAT	SAU	SAE	BCU	WCR	STR	MBR	VAR	FPR	SPR	TIR	HMR	SWR	SDR	CSR	WPR
S-3	48	19	-31	15	-09	-53	66	22	05	22	-18	44	47	47	-29	-02	-14	48	-17	-72	07	-14	25	60	44	49	38	54	60						75
S-4	43	45	-20	38	16	-52	56	30	-09	38	-08	23	51	46	-09	17	00	51	-26	-72	23	05	05	04	25	54	14	43	40						50
S-T	48	26	-32	18	-01	-54	63	27	-01	30	-14	39	51	49	-23	05	-10	50	-21	-74	14	-07	17	62	40	52	34	54	58						69
P-R	19	00	-20	22	-10	09	-22	07	-18	30	17	13	41	18	-04	21	-09	44	-22	-55	36	-22	14	-26	06	25	01	-30	06						07
P-L	41	36	-04	15	04	-26	22	26	06	32	-01	34	60	40	-18	18	-06	37	-35	-72	29	-20	19	47	11	46	-13	02	24						40
P-B	50	21	14	26	-02	-32	42	03	16	18	-14	41	59	53	-23	00	02	43	-16	-67	23	-05	42	14	14	27	03	00	14						30
P-T	41	22	-04	23	-03	-20	17	16	02	31	-12	34	61	42	-17	15	-05	35	-28	-73	33	-18	29	13	12	37	-04	-09	17						31
P-A	22	27	-03	34	40	-17	-52	18	-32	14	-15	50	36	48	-01	11	16	25	-17	-76	06	-17	35	17	06	37	-10	05	31						18
C-1	48	38	-37	56	08	-42	41	18	15	20	-09	47	40	32	04	09	-07	25	-15	-59	24	02	16	54	35	42	25	53	52						71
C-2	52	31	18	06	-06	-44	59	22	18	16	-04	64	52	29	-09	-23	-08	62	07	-44	12	34	47	45	36	53	32	53	47						49
HRW	20	15	-33	06	-03	-15	29	27	-16	15	-08	39	13	30	-08	07	-10	43	05	-51	16	-42	02	27	37	42	30	36	33						40
PAA	76	11	-23	25	06	-35	56	37	18	30	-18	58	63	63	-08	-05	-11	52	-10	-60	31	09	36	37	30	53	27	43	36						57
PAD	63	05	-30	-05	-01	-43	59	-05	40	37	-13	54	55	-51	-07	-14	-04	51	-06	-59	34	-01	35	41	28	43	16	43	40						53
B-1	53	40	-07	10	08	-37	26	09	14	21	-16	44	50	38	-14	00	-13	42	-14	-75	18	-33	36	45	30	51	-03	12	29						51
B-2	54	42	-13	-24	14	-49	44	08	16	10	-12	53	52	54	-03	08	-15	42	-08	-85	-02	-11	45	61	29	67	01	38	47						61
B-3	36	05	02	-19	-21	-30	32	59	-18	30	-07	04	26	29	-18	04	-22	26	-13	-35	04	24	18	37	11	23	03	29	20						22
BEN	51	36	-37	27	02	-45	59	24	02	22	-14	56	49	43	-12	-10	-03	50	-06	-58	33	-12	30	55	41	67	49	56	51						50
MAA	11	09	-07	65	20	15	08	-03	-16	-23	26	04	09	06	29	14	38	19	10	-03	23	21	-12	01	-06	31	39	-08	-08						-21
MAL	-26	30	15	-06	-10	12	-06	-10	12	03	17	-21	-10	-16	02	-03	07	-04	15	24	-16	15	-31	00	-05	-42	-10	-06	-27						-26
PPV	-01	-19	07	-26	-12	-22	-09	07	14	11	-10	12	06	-13	-17	-17	-27	-11	-26	05	15	-08	22	32	-04	-15	-18	24	38						48
L-C	37	-38	09	32	01	-10	06	-28	56	06	-21	31	21	21	12	-11	30	08	-04	16	16	43	35	-18	-12	25	-36	-11	-30						17
PS1	04	23	25	23	-11	10	-10	22	-33	-12	09	-05	-05	-02	28	10	21	02	-33	26	35	63	04	-15	04	17	-31	-10	-45						-12
PS2	04	10	09	-06	-05	10	-23	23	-48	-16	13	-11	-05	-04	24	12	35	-08	-17	31	20	53	-18	-34	-09	18	-28	-12	-40						-14
PF1	-31	13	05	59	-25	56	-26	13	-10	-09	07	-19	-21	-06	-03	04	-02	06	-26	33	23	-04	-13	-45	-13	-19	19	-38	-40						03
PF2	-22	29	-07	27	-12	56	-32	27	-27	-08	35	-13	-15	-15	11	-06	-07	09	-07	37	08	-06	-09	-37	-10	01	33	-06	-20						18
COM	-04	39	12	42	-15	-05	28	-25	12	-21	05	13	-05	09	-14	-26	07	34	-35	-05	-08	05	-03	09	18	-03	14	18	-30						20
G-S	10	33	28	05	-29	-30	08	03	26	12	-01	15	15	-06	-40	-14	37	26	-03	-14	-02	-48	06	14	-04	12	-49	-18	-33						-17
G-F	-32	01	12	64	27	37	-02	-09	-09	-01	17	-28	01	-01	-18	-01	03	11	-23	24	24	-27	-10	-06	-20	-27	28	-26	-15						03
AGE	-22	08	19	54	31	-09	-04	20	49	08	08	-14	-34	-10	-10	-26	32	07	-06	26	14	14	-23	08	-43	-05	-41	-08	-41						-25

*Correlations significant at 1% level are indicated by underscoring.

APPENDIX C-11: Correlations of Psychological Tests With Prevocational Unit and Field Ratings.*

	PREVOCATIONAL UNIT														PREVOCATIONAL FIELD													
	APP	PHM	ATT	PUN	ATD	IND	WKR	SUP	CLM	ATN	QUL	QUN	WOS	GNE	APP	PHM	ATT	PUN	ATD	IND	WKR	SUP	CLM	ATN	QUL	QUN	WOS	GNE
S-3	50	18	13	11	08	49	39	20	21	53	59	65	46	65	39	33	51	16	20	43	49	37	42	51	58	63	59	58
S-4	50	14	13	14	10	44	39	15	19	45	54	54	40	61	38	39	52	24	44	50	40	40	45	52	58	63	61	58
S-T	55	22	17	12	10	49	44	20	25	54	63	62	48	65	40	38	54	17	20	45	51	40	44	53	60	64	62	51
P-R	27	02	08	03	16	21	29	12	07	17	37	44	23	39	33	26	31	16	15	27	43	31	34	40	43	51	47	46
P-L	44	01	09	05	00	30	24	08	18	27	41	50	26	44	27	25	36	11	16	33	42	23	28	38	43	47	49	49
P-B	39	-09	10	16	08	33	30	12	18	34	48	51	33	53	35	33	37	25	28	41	46	36	44	46	52	57	52	54
P-T	43	-02	11	09	09	33	31	12	17	30	48	56	31	52	36	32	40	19	22	39	50	34	40	47	53	59	57	57
P-A	44	15	22	12	03	42	35	20	34	41	52	61	44	58	38	33	41	03	13	38	43	34	39	48	51	51	54	54
C-1	52	26	20	16	10	36	36	24	30	43	49	45	42	50	48	51	50	18	27	42	45	46	51	51	55	55	53	54
C-2	33	13	08	28	15	30	23	15	19	35	42	41	35	43	28	31	31	17	24	27	30	31	35	32	38	37	33	38
HRW	45	17	09	-09	07	24	12	-04	11	25	36	38	31	47	33	16	27	-18	-15	25	19	18	20	39	42	40	44	43
PAA	52	22	21	24	07	38	40	19	24	42	58	54	39	57	37	33	46	16	22	41	44	39	40	45	51	54	52	55
PAD	33	20	27	23	07	40	29	18	27	37	57	52	42	51	25	24	39	10	14	33	34	31	33	41	46	49	46	51
B-1	37	14	12	08	06	30	29	18	16	39	52	53	32	47	40	34	52	13	17	46	48	39	48	55	56	56	60	57
B-2	36	06	11	18	13	32	32	15	20	40	54	51	33	52	42	37	50	16	21	48	43	37	47	53	54	55	55	57
B-3	44	03	01	00	05	20	25	00	09	28	40	39	27	45	29	27	32	08	08	23	34	23	32	38	39	41	37	39
BEN	41	22	07	09	-01	34	38	04	14	36	43	47	35	51	34	22	35	-02	06	29	33	27	34	36	43	42	42	43
MAA	-03	01	-02	10	07	00	-05	05	-03	-11	-12	-06	-01	-05	-11	-01	09	08	10	04	07	09	-03	03	07	02	10	07
MAL	-14	13	10	12	-03	-07	-02	05	07	-01	-29	-31	-06	-23	-14	-02	-18	10	02	-07	-10	-05	-06	-29	-25	-28	-29	-27
PPV	05	06	-05	-20	-19	05	06	-07	05	05	02	01	-02	13	05	04	03	-14	-01	-07	01	03	06	08	03	04	05	08
L-C	-01	-06	04	-02	10	15	01	03	03	04	21	18	-04	15	06	20	22	19	24	22	24	28	21	26	28	31	25	29
PS1	08	-11	05	08	14	-03	-10	-06	08	-06	-06	-06	-12	-16	03	14	05	12	10	-01	00	11	05	-05	-01	-02	02	00
PS2	23	-08	08	04	08	08	01	-02	17	01	05	-02	-02	05	-02	17	11	20	18	02	05	16	03	-03	02	03	02	06
PF1	-10	-09	-04	-13	05	-20	-07	-13	-06	-21	-23	-21	-22	-22	-14	-11	-14	-02	03	-15	-09	-06	-15	-20	-16	-21	-14	-17
PF2	-09	00	05	-04	-03	-16	-12	01	08	-17	-21	-19	-12	-12	-25	-21	-23	-05	01	-20	-20	-18	-27	-34	-31	-35	-31	-28
COM	08	06	15	20	15	04	-07	06	23	-01	05	-06	05	09	-02	03	-05	05	10	-04	-10	04	-05	-12	-07	-09	-11	-08
G-S	10	07	18	17	09	10	-02	13	20	00	-02	01	-01	05	02	06	-01	07	07	02	02	15	07	-05	-01	-05	-07	-02
G-F	-03	-01	01	02	05	-26	-02	00	04	-29	-23	-18	-16	-13	-11	-06	-07	-09	02	-11	-14	-16	-27	-17	-22	-22	-19	-14
AGE	-16	14	03	22	00	-13	01	13	-05	-08	-20	-27	-04	-23	-10	-11	-16	-14	03	-09	-17	-07	-15	-19	-15	-23	-17	-17

*Correlations significant at 1% level are indicated by underscoring.

APPENDIX C-12: Correlations of Psychological Tests With Ends of Phases II and III.*

END OF PHASE II

	APP	PHM	ATT	PUN	ATD	IND	WKR	SUP	CLM	ATN	QUL	QUN	WOS	GNE
S-3	22	16	27	08	19	30	35	22	28	28	33	34	34	35
S-4	25	14	25	01	15	29	29	18	26	27	31	32	33	34
S-T	25	18	30	04	16	33	35	23	30	30	35	34	36	38
P-R	24	05	16	-07	07	16	20	10	11	17	22	24	17	21
P-L	29	21	16	-12	03	21	27	15	12	19	27	27	21	21
P-B	28	13	15	04	14	20	27	13	14	18	23	24	19	22
P-T	31	15	18	-06	09	21	28	14	14	20	28	29	22	24
P-A	30	21	22	-11	03	26	28	15	11	22	28	27	25	28
C-1	28	19	34	11	16	38	32	27	32	37	43	39	36	41
C-2	11	08	15	03	09	20	28	15	18	19	24	20	18	23
HRW	22	04	06	-09	02	12	14	14	09	13	17	19	17	20
PAA	36	27	27	08	18	33	36	27	24	29	35	34	33	35
PAD	16	03	18	-03	03	22	22	12	14	19	23	21	23	27
B-1	22	15	16	-10	02	18	26	12	11	17	19	18	18	22
B-2	18	11	14	-07	06	20	23	13	10	17	22	21	18	24
B-3	15	13	17	-09	03	15	22	12	18	18	23	19	20	[illegible]
BEN	22	04	12	-10	03	20	19	09	07	14	24	22	18	21
MAA	-13	--10	-04	07	07	04	05	-01	05	03	00	04	02	-02
MAL	-28	-18	-17	09	-04	-17	-25	-16	-21	-20	-23	-21	-20	-19
PPV	08	13	00	-12	-08	-01	04	-02	03	03	04	-06	-03	-02
L-C	02	05	05	-02	08	11	07	02	06	06	05	08	08	05
PS1	-11	-01	-01	-01	-03	02	-04	04	01	00	00	-04	-02	-07
PS2	-14	-08	-05	00	01	00	-06	-11	-01	-04	00	-07	-04	-08
PF1	-24	-15	-16	-06	-09	-19	-23	-14	-11	-15	-18	-13	-13	-18
PF2	-25	-10	-07	-04	-07	-12	-17	-08	-07	-12	-11	-11	-08	-14
COM	-14	-11	-08	00	07	-08	-08	-08	-13	-12	-06	-02	-06	-10
G-S	-11	-07	-06	00	12	-06	-05	-02	-11	-07	-07	-03	-12	-20
G-F	-19	-14	-12	-08	-06	-16	-16	-12	-13	-19	-16	-15	-19	-24
AGE	03	02	-04	-04	-01	-05	-07	-02	-03	01	-02	02	00	-05

END OF PHASE III

	APP	PHM	ATT	PUN	ATD	IND	WKR	SUP	CLM	ATN	QUL	QUN	WOS	GNE
S-3	19	21	19	-09	-12	-12	14	11	27	24	26	31	30	29
S-4	21	18	11	-03	-08	09	16	06	24	18	20	24	20	24
S-T	22	21	17	-05	-10	12	17	11	27	23	25	29	27	29
P-R	22	18	09	-15	-12	-01	12	02	18	07	09	13	11	14
P-L	19	20	17	-09	-04	05	13	-03	11	09	04	06	06	09
P-B	09	12	16	-10	-03	07	11	-01	14	10	04	08	06	10
P-T	19	19	16	-13	-09	04	14	-02	17	10	06	09	08	12
P-A	17	15	09	-22	-20	01	17	-03	18	10	11	10	08	14
C-1	20	21	23	16	12	20	23	18	32	28	34	33	31	35
C-2	12	14	11	-05	03	09	15	02	28	14	12	15	14	17
HRW	26	11	15	-13	-12	09	21	01	18	15	19	23	21	17
PAA	14	18	23	07	14	14	18	19	34	21	18	25	24	23
PAD	01	05	11	06	07	05	11	13	21	16	16	19	19	23
B-1	10	15	07	-14	-09	-07	19	00	22	10	09	10	12	16
B-2	14	20	06	-10	-09	-05	14	-02	16	07	05	08	08	10
B-3	05	04	04	-26	-12	-04	02	00	03	10	06	08	06	04
BEN	14	12	06	-11	-08	04	17	02	21	15	13	12	14	16
MAA	06	06	05	-04	-06	02	07	01	01	05	04	02	04	08
MAL	-16	-07	03	21	13	02	-07	08	03	-03	01	-02	01	00
PPV	28	-04	-10	-05	-09	-19	-15	-14	10	-02	-03	-02	-04	-03
L-C	-01	00	-05	-21	-27	04	-07	00	-07	03	00	01	01	00
PS1	-26	-34	-31	-34	-32	-26	-30	-38	-33	-25	-24	-31	-28	-29
PS2	-20	-19	-11	-13	-11	-08	-14	-17	-10	-07	-09	-17	-14	-15
PF1	-25	-21	-15	-23	-21	-25	-26	-17	-12	-22	-21	-25	-20	-23
PF2	-11	-05	03	-16	-16	-07	-14	05	14	-08	-05	-11	-06	-10
COM	-16	-08	04	-06	-03	04	-16	01	05	-03	02	-05	01	-02
G-S	-20	-12	05	07	04	05	-05	-05	13	-01	-01	-03	03	02
G-F	-18	-06	14	11	15	14	-14	05	09	03	10	02	06	02
AGE	03	07	14	-08	02	16	-07	20	02	07	03	06	11	05

*Correlations significant at 1% level are indicated by underscoring.

APPENDIX D-1: Vocational Interest and Sophistication Assessment Test

The VISA is a combination picture test and inquiry designed to determine the interests and knowledge mildly retarded young men and women have for a range of vocations. The job areas included are typical of the kinds which retardates fill upon completion of training in schools, workshops or institutions. The technique has been experimentally developed as part of VRA Project 425. Its capacity to discriminate interests reliably has been established; its validity and range of utility will be tested in VRA Project 1221.

Materials

The examiner will need the following materials:

1. Booklet of VISA pictures for presentation to subject (male or female form dependent on subject).
2. Sophistication response sheets to record the inquiry (7 sheets required for male subject and 4 sheets for female subject).
3. IBM Porta Punch Boards, template and stylus for recording picture responses (2 cards per subject).

Instructions

Each subject is tested individually on sophistication and vocational interest aspects of the VISA test, in the following sequence.

A) The sophistication aspect of the VISA consists of a series of eight questions which are given to the subject before the interest portion of the test is presented. The individual pictures to be presented to the testee can be found at the top of the sophistication responses forms. Seven separate forms are required for each male subject and four are required for each female subject. The examiner should enter the subject's name and circle the appropriate picture number at the top of these forms in order to facilitate the scoring of responses at a later date. The examiner will query and record the responses obtained to the following questions in as verbatim a manner as possible.

1. What is the person doing in this picture? (activity, not job name; e.g. drying clothes, washing windows).
2. What do you call someone who does that kind of work?
3. What are some of the other things (activities) you would do in that kind of job? (Attempt to elicit 2 or more relevant responses).
4. What do you have to know to get a job like this?
5. In what kinds of places do people do that type of job?
6. In a job like that would the people be mostly men or mostly women?
7. What do you think that job pays for a whole week's work?
8. If you could have any kind of job you wanted, would you pick this one?

APPENDIX D-1: (Continued)

B) Once the answers to the above pictures have been obtained, the examiner presents the subjects with the interest aspect of the VISA as follows:

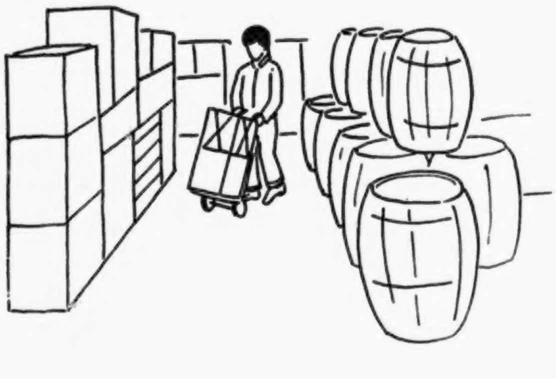
The first introductory card is shown and the following is said: "THIS IS A PICTURE OF JOHN (OR JANE). YOU CAN ALWAYS TELL THAT THIS IS JOHN (JANE) BECAUSE HE (SHE) HAS BLACK HAIR THAT LOOKS LIKE THIS. SOMETIMES JOHN (JANE) WILL BE WORKING ALONE AND SOMETIMES HE (SHE) WILL BE WORKING WITH OTHER PEOPLE, OR WILL HAVE A BOSS OR SUPERVISOR. IF JOHN (JANE) HAS A MAN FOR A BOSS OR SUPERVISOR, HE WILL LOOK LIKE THIS (Turn page to second introductory card). YOU CAN ALWAYS TELL THAT HE IS THE BOSS OR SUPERVISOR BECAUSE HE IS GETTING BALD (Point to this for subject). SOMETIMES JOHN (JANE) WILL HAVE A WOMAN AS HIS (HER) BOSS OR SUPERVISOR, IF JOHN (JANE) HAS A WOMAN FOR A BOSS OR SUPERVISOR SHE WILL LOOK LIKE THIS (Turn page to third introductory card.) YOU CAN ALWAYS TELL THAT SHE IS THE BOSS OR SUPERVISOR BECAUSE SHE WILL LOOK LIKE THIS WITH HER HAIR IN A BUN OR KNOT (Point this out to subject). I AM GOING TO SHOW YOU SOME PICTURES OF JOHN (JANE) DOING MANY DIFFERENT JOBS AND WHAT I WANT YOU TO DO IS TO TELL ME WHETHER OR NOT YOU WOULD LIKE TO DO THE SAME KIND OF WORK. DO YOU HAVE ANY QUESTIONS BEFORE WE BEGIN? (Pause to answer questions).

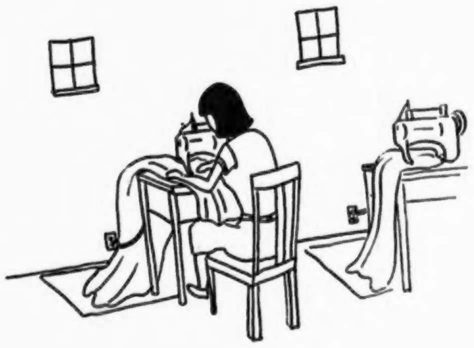
When it is apparent that the subject understands the instructions, the test is continued by presenting the series of pictures in consecutive order. For each the subject is asked, "WOULD YOU LIKE TO DO THIS JOB?" If the response is affirmative, the examiner inquiries, "WOULD YOU LIKE IT A LITTLE OR A LOT?" The response is recorded in row 1 of the Porta Punch Card as follows: "not like" responses are punched 1; "like a little" responses are punched 2; and "like a lot" responses are punched 3. The same recording procedure is followed for each of the 75 pictures in the male series, or 53 pictures in the female series, observing the item number for each picture as indicated on the response scoring template. Generally after the first few items, it will be found that the testee will indicate his degree of like or dislike for each job situation without having to be asked by the examiner.

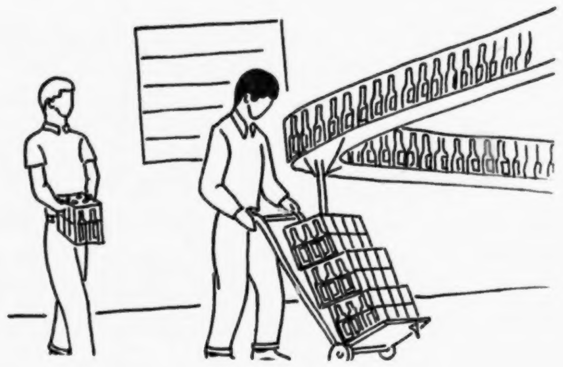
In the event a subject verbally states he does not know the depicted job by expressly stating, "I don't know what it is; what is that?" or the like, the subject should be told what the job is, and the question as to like or dislike continued. The name of the job should not be offered unless in some way, the subject indicates that he does not recognize the picture presented to him. Should the testee spontaneously, but incorrectly identify a job, the examiner should explain what the correct job title is and re-ascertain the subject's degree of liking or disliking of the job.

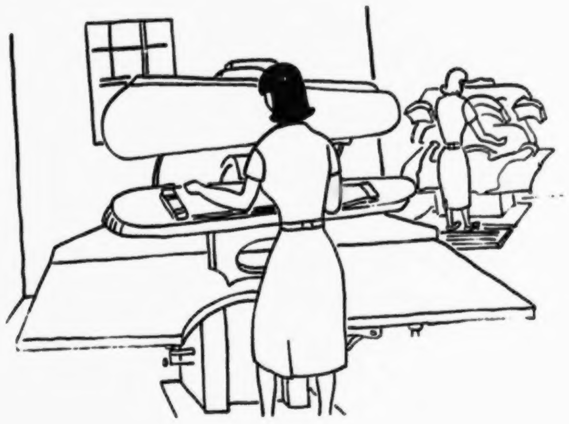
Finally, if a response set is noted, the examiner should interrupt the testing procedure in an attempt to discourage perseveration.

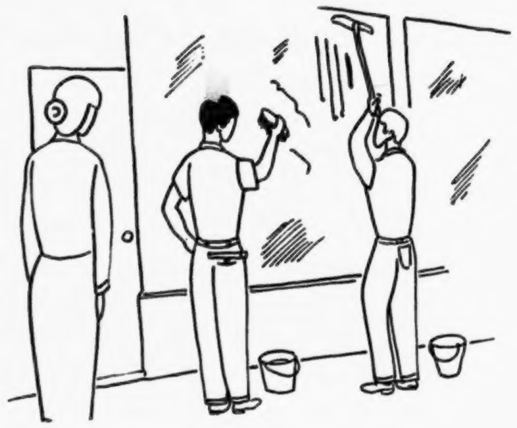
APPENDIX D-2: Sample Picture Items from the VISA.*

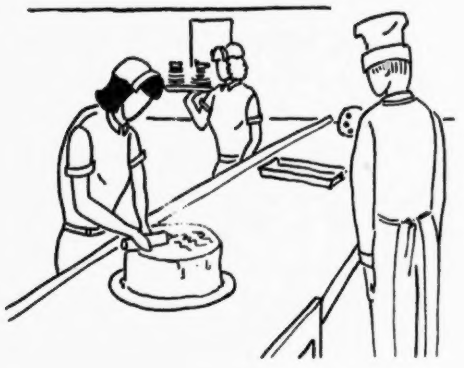












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*Reproduced 0.25x

APPENDIX D-3: VISA, Male Form, Interest Clusters, Descriptions, Factor Loadings, and Associated Item Correlations.*

(N=179)

Cluster	Activity	I	II	III	IV	V	VI^{+}
Food Service	Operating Dishwasher	5	56	41	B	59	71
	Roasting	20	68	8	B	67	77
	Pouring Beverage	26	67	45	D	65	78
	Meat Cutting	28	58	47	AC	51	80
	Deep Frying	30	76	63	B	73	68
	Cake Decorating	43	76	52	BD	70	86
	Operating Slicer	60	62	1	BD	56	59
Farm & Grounds	Shoveling Snow	25	60	6	C	62	79
	Hand Milking	40	65				
	Collecting Eggs	44	87	2	BC	89	78
	Tractor Driving	46	62	23	C	62	78
	Hand Plowing	50	59	74	A	60	84
	Sawing Logs	58	65	54	A	59	83
	Mowing Lawn	61	43				
	Feeding Chickens	68	85	38	BD	87	81
	Using Pick Axe	69	70	34	AC	67	73
Garage	Tire Changing	4	80	9	A	80	79
	Car Polishing	12	52	71	A	72	56
	Car Lubricating	15	76	51	C	69	63
	Car Washing	22	72	64	AC	74	67
	Pumping Gas	67	75				
Light Industrial	Power Looming	27	50	72	BC	53	62
	Operating Mimeograph	31	72	57	B	66	76
	Bench Assembly	39	77	49	BD	71	72
	Operating Drillpress	66	58	42	C	58	68
Light Maintenance	Housepainting	29	77	17	A	79	81
	Changing Bulbs	33	81	53	D	76	77
	Window Washing (Int.)	35	62	37	BD	64	62
	Window Washing (Ext.)	56	67	48	AD	73	83

APPENDIX D-3: (Continued)

Cluster	Activity	I	II	III	IV	V	VI[+]
Laundry	Operating Mangle	10	70	3	BC	69	69
	Pushing Hamper	13	75	36	AC	70	68
	Loading Washer	19	68	7	A	70	65
	Trouser Pressing	65	38	16	C	42	66
	Sorting Clothes	73	62	32	B	73	72
Materials Handling	Unloading Conveyor	11	74	59	A	69	72
	Floor Sweeping	21	41	24	B	41	76
	Package Wrapping	55	53	14	BD	56	74
	Using Handtruck	62	70	75	A	76	81
	Delivering Package	70	36	18	C	17	69

*Legend for Columns

I. Picture Number, Person Working Alone
II. Factor Loading for Picture in Column I
III. Picture Number, Person Working with Others
IV. Social Components of Picture in Column III
    A. Male co-worker
    B. Female co-worker
    C. Male supervision
    D. Female supervision
V. Factor Loading for Picture in Column III
VI. Correlation between Picture in Column I and Picture in Column III

[+] All Correlations significant at .001 level.

APPENDIX D-4: VISA, Female Form, Interest Clusters, Descriptions, Factor Loadings, and Associated Item Correlations.*

(N=164)

Cluster	Activity	I	II	III	IV	V	VI+
Business-Clerical	Filing	2	74	29	C	76	72
	Operating Mimeograph	10	80	23	BC	68	68
	Operating Switchboard	14	75	49	B	66	63
	Store Clerking	39	66	17	AD	65	69
	Sorting Mail	40	89	51	AC	91	77
	Typing	44	56	18	A	62	67
Housekeeping	Sweeping	3	65	31	BD	67	57
	Hanging Clothes	11	60	33	B	70	64
	Floor Scrubbing	15	74	50	C	81	71
	Beating Rug	22	67	28	AD	75	63
	Making Pancakes	35	27				
	Washing Dishes	37	67	24	D	56	69
Food Service	Baking	4	76	8	AC	84	56
	Vegetable Preparation	6	65	48	D	77	58
	Bussing Dishes	20	69	42	BD	77	40
	Pouring Beverages	25	72	1	A	83	56
	Deep Frying	27	78	12	C	76	65
	Cake Decorating	32	75	46	BC	79	62
Laundry	Shirt Pressing	5	59	21	D	58	66
	Sewing (industrial)	7	86	52	B	86	71
	Trouser Pressing	9	69	36	B	58	48
	Pushing Hamper	16	65	53	C	60	54
	Shirt Folding	19	64	38	AC	69	66
	Loading Washer	30	72	26	AD	66	76
	Sorting Clothes	34	70	13	BD	55	53
	Ironing	43	50				
	Sewing (domestic)	45	80				
	Operating Mangle	47	73	41	A	68	76

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*Legend for Columns:

I. Picture Number, Person Working Alone
II. Factor Loading for Picture in Column I
III. Picture Number, Person Working with Others
IV. Social Components of Picture in Column III
  A. Male co-worker
  B. Female co-worker
  C. Male supervisor
  D. Female Supervisor
V. Factor Loading for Picture in Column III
VI. Correlation Between Picture in Column I and Picture in Column III

+All Correlations significant at .001 level.

APPENDIX D-5: Correlations of VISA Clusters with Grouped Prevocational Unit Tasks.*

MALE

	Business-Clerical		Maintenance		Housekeeping		Light Industrial	
VISA Clusters	Mn* r	Mn N	Mn* r	Mn N	Mn* r	Mn N	Mn* r	Mn N
Food Service	-.060	31	-.291	24	-.140	29	-.050	38
Farm and Grounds	-.010	31	-.129	24	-.095	29	-.073	38
Garage	-.040	31	-.285	24	-.184	29	-.110	38
Light Industrial	.040	31	-.143	24	-.028	29	-.052	38
Light Maintenance	-.070	31	-.375	24	-.210	31	-.140	37
Laundry	-.060	31	-.401	24	-.100	31	-.117	37
Material Handling	.04	31	-.159	24	-.070	31	-.055	37
FEMALE								
Business-Clerical	-.129	18	-.020	18	.110	19	-.120	21
Housekeeping	-.040	18	.163	18	.070	19	-.080	21
Food Service	-.001	18	.289	18	.035	19	-.020	21
Laundry	.096	18	.509	18	.129	19	-.059	21

*No correlations significant at the .01 level

*Correlations significant at 1% level are indicated by underscoring.

APPENDIX E-1: Intercorrelations of Sums of First Three Ratings in Phase II.*

MALES

	A. Personal						B. Interpersonal				C. Job Skills	
	APP	PHM	ATT	PUN	ATD	IND	WKR	SUP	CLM	ATN	QUL	QUN
A. Personal												
PHM	74											
ATT	65	82										
PUN	50	58	72									
ATD	38	40	60	88								
IND	66	65	87	63	49							
B. Interpersonal												
WKR	66	61	65	50	44	62						
SUP	58	81	78	62	46	73	68					
CLM	55	72	77	68	55	76	75	82				
ATN	60	77	84	74	60	88	66	83	84			
C. Job Skills												
QUL	61	75	80	66	57	85	64	70	76	87		
QUN	66	78	85	66	54	89	67	77	79	88	93	
WOS	67	79	86	63	51	85	68	83	80	88	87	94

FEMALES

	A. Personal						B. Interpersonal				C. Job Skills	
	APP	PHM	ATT	PUN	ATD	IND	WKR	SUP	CLM	ATN	QUL	QUN
A. Personal												
PHM	67											
ATT	67	90										
PUN	33	37	46									
ATD	10	23	22	43								
IND	66	72	92	46	27							
B. Interpersonal												
WKR	62	59	46	58	39	35						
SUP	44	79	79	70	22	64	60					
CLM	55	82	85	54	40	78	53	84				
ATN	78	71	89	40	19	91	48	64	75			
C. Job Skills												
QUL	76	68	81	24	19	85	46	55	66	96		
QUN	76	71	83	40	14	86	43	63	69	91	93	
WOS	76	68	84	33	15	88	45	57	64	96	97	94

*Correlations significant at 1% level are indicated by underscoring.

APPENDIX E-2: Intercorrelations of Sums of First Three Ratings in Phase III.*

	MALES												FEMALES											
	A. Personal						B. Interpersonal				C. Job Skills		A. Personal						B. Interpersonal				C. Job Skills	
	APP	PHM	ATT	PUN	ATD	IND	WKR	SUP	CLM	ATN	QUL	QUN	APP	PHM	ATT	PUN	ATD	IND	WKR	SUP	CLM	ATN	QUL	QUN
A. Personal																								
PHM	74												75											
ATT	47	65											48	85										
PUN	20	27	54										26	67	71									
ATD	14	23	51	86									-03	40	46	76								
IND	44	56	88	52	49								52	76	90	51	35							
B. Interpersonal																								
WKR	24	46	68	32	29	63							40	72	86	58	47	76						
SUP	53	65	76	47	45	68	64						71	88	82	45	12	74	74					
CLM	23	37	69	41	45	63	64	75					76	79	74	36	07	67	74	94				
ATN	46	60	85	49	46	86	67	71	67				50	87	92	60	43	83	86	83	73			
C. Job Skills																								
QUL	44	55	88	41	43	90	68	68	65	87			69	80	84	42	34	89	79	73	75	81		
QUN	46	58	89	48	42	90	73	74	65	87	93		30	71	87	60	49	91	79	69	60	88	77	
WOS	51	61	86	46	37	87	60	73	57	83	84	90	49	82	91	51	39	94	80	76	69	91	91	90

*Correlations significant at 1% level are indicated by underscoring.

APPENDIX E-3: Intercorrelations of Sums of Last Six Ratings in Phase IV.*

MALES

	A. Personal						B. Interpersonal				C. Job Skills	
	APP	PHM	ATT	PUN	ATD	IND	WKR	SUP	CLM	ATN	QUL	QUN
A. Personal												
PHM	91											
ATT	92	90										
PUN	84	89	83									
ATD	87	92	91	92								
IND	94	89	93	85	85							
B. Interpersonal												
WKR	87	90	85	85	88	87						
SUP	88	90	89	88	97	84	89					
CLM	91	93	88	89	90	90	94	89				
ATN	93	90	93	89	92	92	95	93	94			
C. Job Skills												
QUL	92	80	88	[illegible]	77	91	80	79	83	92		
QUN	91	91	93	[illegible]	93	92	88	90	91	94	89	
WOS	81	81	84	81	82	79	83	83	85	88	83	83

FEMALES

	A. Personal						B. Interpersonal				C. Job Skills	
	APP	PHM	ATT	PUN	ATD	IND	WKR	SUP	CLM	ATN	QUL	QUN
A. Personal												
PHM	90											
ATT	89	90										
PUN	85	89	85									
ATD	80	76	86	79								
IND	84	87	94	85	72							
B. Interpersonal												
WKR	82	91	90	89	84	88						
SUP	87	97	93	87	80	87	93					
CLM	89	97	92	86	81	86	91	98				
ATN	87	90	95	85	82	94	87	90	92			
C. Job Skills												
QUL	79	83	91	80	75	92	83	82	81	92		
QUN	72	[illegible]	90	78	75	87	82	80	79	85	95	
WOS	76	83	89	81	75	92	85	83	82	91	96	93

*Correlations significant at 1% level are indicated by underscoring.

APPENDIX E-4: Correlations Between Sums of First Three Ratings in Phase II and Sums of Last Three Ratings in Phase II.*

	MALES													FEMALES												
	A. Personal						B. Interpersonal				C. Job Skills			A. Personal						B. Interpersonal				C. Job Skills		
	APP	PHM	ATT	PUN	ATD	IND	WKR	SUP	CLM	ATN	QUL	QUN	WOS	APP	PHM	ATT	PUN	ATD	IND	WKR	SUP	CLM	ATN	QUL	QUN	WOS
A. Personal																										
APP	31	$\underline{39}$	20	08	-01	25	09	30	17	23	27	27	17	48	41	37	20	11	32	42	31	31	27	37	26	24
PHM	20	36	28	13	01	31	16	$\underline{38}$	26	27	24	27	31	38	34	31	00	-05	30	18	19	29	39	36	27	30
ATT	13	29	34	15	08	32	10	$\underline{44}$	29	24	23	23	29	49	51	50	19	10	44	34	38	42	50	48	44	43
PUN	07	34	$\underline{38}$	26	21	$\underline{43}$	18	$\underline{46}$	34	33	31	30	$\underline{39}$	04	04	02	29	10	-06	03	-07	23	-03	03	00	-11
ATD	10	32	$\underline{43}$	28	25	$\underline{44}$	16	$\underline{47}$	$\underline{39}$	33	$\underline{38}$	29	$\underline{39}$	01	-05	07	10	16	01	08	00	04	10	15	08	09
IND	15	25	28	06	01	27	06	33	20	15	22	21	27	$\underline{66}$	$\underline{70}$	$\underline{69}$	37	31	56	57	58	56	59	$\underline{63}$	$\underline{60}$	57
B. Interpersonal																										
WKR	33	$\underline{50}$	$\underline{37}$	14	15	$\underline{43}$	$\underline{39}$	$\underline{45}$	$\underline{40}$	32	$\underline{38}$	32	35	09	03	01	14	-01	03	18	04	26	12	15	01	-02
SUP	09	32	30	19	10	29	15	$\underline{38}$	28	25	18	16	33	33	27	25	22	06	18	10	14	39	27	25	25	18
CLM	20	$\underline{45}$	31	12	17	30	16	$\underline{43}$	34	22	21	19	30	40	34	35	12	01	29	19	23	33	33	29	26	21
ATN	17	$\underline{41}$	$\underline{41}$	20	20	$\underline{40}$	24	$\underline{47}$	35	32	36	34	$\underline{42}$	$\underline{66}$	$\underline{63}$	$\underline{64}$	37	27	54	57	56	53	53	58	55	52
C. Job Skills																										
QUL	13	31	32	09	06	32	20	$\underline{39}$	29	27	31	29	$\underline{35}$	$\underline{72}$	$\underline{63}$	$\underline{66}$	29	23	51	58	56	49	52	$\underline{60}$	56	56
QUN	13	33	34	17	14	31	20	$\underline{44}$	31	28	29	31	$\underline{37}$	$\underline{70}$	$\underline{62}$	$\underline{60}$	17	11	41	47	44	43	44	51	46	47
WOS	21	$\underline{40}$	36	18	17	32	21	$\underline{47}$	31	30	28	30	$\underline{37}$	$\underline{69}$	$\underline{60}$	$\underline{63}$	31	23	51	59	53	48	51	$\underline{60}$	54	54

*Correlations significant at 1% level are indicated by underscoring.

APPENDIX E-5: Correlations Between Sums of First Three Ratings in Phase II and Sums of Last Three Ratings in Phase III.*

	MALES													FEMALES												
	A. Personal						B. Interpersonal				C. Job Skills			A. Personal						B. Interpersonal				C. Job Skills		
	APP	PHM	ATT	PUN	ATD	IND	WKR	SUP	CLM	ATN	QUL	QUN	WOS	APP	PHM	ATT	PUN	ATD	IND	WKR	SUP	CLM	ATN	QUL	QUN	WOS
A. Personal																										
APP	$\underline{57}$	35	$\underline{49}$	15	06	44	14	31	18	44	41	33	41	-39	-52	-21	-16	-27	-30	-01	-35	01	-21	-10	-01	-06
PHM	40	41	$\underline{59}$	28	26	$\underline{50}$	37	$\underline{49}$	41	47	45	43	49	-36	-54	04	17	05	-12	-09	-03	17	01	07	17	10
ATT	33	41	63	33	31	$\underline{53}$	$\underline{50}$	$\underline{49}$	46	$\underline{58}$	$\underline{48}$	47	$\underline{54}$	-12	-30	37	65	50	10	11	15	52	17	06	-01	02
PUN	25	26	44	40	22	33	37	28	28	34	31	28	38	-11	-26	24	37	21	-03	-14	-11	44	06	09	02	-01
ATD	34	35	$\underline{52}$	41	24	$\underline{49}$	43	41	32	45	47	$\underline{43}$	$\underline{51}$	23	58	23	-23	-31	56	74	42	14	30	04	08	26
IND	$\underline{48}$	45	70	35	26	$\underline{63}$	$\underline{51}$	$\underline{61}$	$\underline{55}$	$\underline{66}$	$\underline{54}$	47	$\underline{56}$	07	-10	29	65	50	06	-01	-03	52	-01	-25	-40	-29
B. Interpersonal																										
WKR	$\underline{48}$	$\underline{51}$	$\underline{58}$	-04	-05	36	25	47	42	44	33	22	29	-40	-58	-41	-29	-37	-42	05	-44	-17	-39	-34	-19	-22
SUP	30	$\underline{52}$	$\underline{52}$	21	21	38	43	45	39	44	32	28	32	-23	-48	-08	11	02	-34	-36	-34	12	-17	04	04	-10
CLM	33	44	$\underline{49}$	21	19	37	$\underline{50}$	$\underline{53}$	$\underline{54}$	44	32	27	33	-23	-29	00	-09	-29	-08	19	-26	26	-09	-07	00	00
ATN	43	$\underline{55}$	$\underline{64}$	44	33	$\underline{56}$	$\underline{59}$	$\underline{59}$	$\underline{55}$	$\underline{61}$	$\underline{51}$	46	$\underline{53}$	-37	-64	-05	44	44	-35	-43	-23	08	-16	-15	-17	-20
C. Job Skills																										
QUL	$\underline{63}$	55	70	47	[illegible]	$\underline{65}$	$\underline{67}$	$\underline{62}$	$\underline{57}$	$\underline{70}$	$\underline{66}$	$\underline{61}$	65	-26	-81	[illegible]	02	13	-87	-72	-64	-50	-72	-55	-47	-64
QUN	$\underline{55}$	$\underline{53}$	66	35	31	$\underline{59}$	$\underline{60}$	$\underline{58}$	$\underline{49}$	$\underline{62}$	$\underline{55}$	$\underline{52}$	$\underline{57}$	-23	-57	-33	11	14	-62	-60	-58	-14	-44	-23	-27	-41
WOS	44	47	$\underline{56}$	31	26	47	$\underline{48}$	41	33	$\underline{54}$	44	$\underline{43}$	47	-41	-53	-16	31	41	-44	-45	-41	-07	-22	-22	-31	-27

*Correlations significant at 1% level are indicated by underscoring.

APPENDIX E-6: Correlations Between Sums of First Three Ratings in Phase II and Last Six Ratings in Phase IV.*

	MALES													FEMALES												
	A. Personal						B. Interpersonal				C. Job Skills			A. Personal						B. Interpersonal				C. Job Skills		
	APP	PHM	ATT	PUN	ATD	IND	WKR	SUP	CLM	ATN	QUL	QUN	WOS	APP	PHM	ATT	PUN	ATD	IND	WKR	SUP	CLM	ATN	QUL	QUN	WOS
A. Personal																										
APP	-20	-11	-28	03	-30	-09	-10	-23	-11	-23	-21	-22	00	53	03	07	28	-48	34	25	-11	-36	-02	04	-06	-21
PHM	-10	-26	-26	00	-12	-12	-12	-05	-03	-12	-12	-18	-04	02	-50	-46	-33	-59	-19	-30	-38	-65	-38	-25	-36	-44
ATT	02	-07	-06	10	-04	-02	00	05	02	-02	-02	-13	22	00	-55	-53	-40	-73	-30	-46	-43	-59	-58	-41	-33	-41
PUN	22	19	18	32	23	11	20	33	24	23	21	07	67	28	-28	00	-29	-37	-14	-02	-04	-15	-44	-05	22	-27
ATD	21	23	20	38	23	15	23	32	28	24	25	11	72	-34	-86	-24	-66	-48	-48	-55	-48	-43	-58	-24	28	-25
IND	07	04	-01	16	-06	04	02	01	06	00	06	-13	39	07	-50	-47	-34	-77	-33	-49	-44	-44	-68	-51	-20	-35
B. Interpersonal																										
WKR	23	08	15	35	11	23	16	16	24	17	23	04	30	35	-27	-19	-23	-33	-14	02	-13	-32	-36	-10	-08	-47
SUP	19	00	14	28	10	11	06	11	18	13	23	06	35	06	-49	-34	-46	-47	-26	-24	-21	-45	-45	-17	-13	-40
CLM	35	16	31	42	31	25	28	39	35	33	36	15	55	05	-61	-62	-39	-70	-30	-40	-52	-66	-55	-47	-50	-56
ATN	18	08	13	34	12	11	11	19	21	15	21	02	57	03	-46	-32	-32	-77	-14	-38	-32	-51	-50	-28	-13	-23
C. Job Skills																										
QUL	12	05	08	2	11	14	17	19	18	13	11	06	27	-09	-60	3	-48	-76	-29	-49	-36	-52	-61	-32	-09	-26
QUN	13	09	07	3	08	16	14	13	19	11	14	08	33	08	-41	5	-35	-65	-16	-29	-22	-41	-50	-21	-06	-25
WOS	07	-01	01	[illegible]	00	05	04	05	11	03	09	-01	31	-03	-45	-20	-40	-69	-11	-38	-20	-36	-54	-21	05	-13

*Correlations significant at 1% level are indicated by underscoring.

APPENDIX E-7: Correlations Between Sums of First Three Ratings in Phase III and Sums of Last Three Ratings in Ph[illegible]II.*

	MALES													FEMALES												
	A. Personal						B. Interpersonal				C. Job Skills			A. Personal						B. Interpersonal				C. Job Skills		
	APP	PHM	ATT	PUN	ATD	IND	WKR	SUP	CLM	ATN	QUL	QUN	WOS	APP	PHM	ATT	PUN	ATD	IND	WKR	SUP	CLM	ATN	QUL	QUN	WOS
A. Personal																										
APP	52	46	35	14	04	34	23	41	34	39	44	47	46	52	30	21	-11	-03	-38	44	30	58	35	35	32	34
PHM	39	41	36	18	12	32	25	38	24	36	32	36	30	-23	27	15	-26	-06	-13	53	32	29	19	12	13	16
ATT	34	29	51	18	09	57	31	45	32	51	50	52	52	10	17	11	-27	-18	-03	39	29	28	12	09	07	14
PUN	11	01	13	24	13	18	22	24	05	09	12	12	16	-02	13	-01	-22	-02	04	18	08	09	06	-04	-04	03
ATD	18	05	15	20	13	21	30	26	10	14	18	19	22	-03	13	-09	-29	-14	-10	12	-16	-09	-10	-18	-30	-10
IND	31	23	46	19	08	61	24	40	31	48	51	51	54	11	11	16	-20	-02	-14	38	22	28	23	13	14	29
B. Interpersonal																										
WKR	17	16	33	-02	01	36	33	21	17	37	30	31	27	09	23	07	00	02	02	35	15	09	-06	-14	-18	-09
SUP	27	32	39	20	12	44	33	47	38	42	39	41	40	09	14	18	-06	00	-14	51	36	24	23	14	20	15
CLM	16	11	35	16	17	34	36	43	41	34	43	43	38	24	13	12	04	-07	-26	41	26	31	15	08	14	09
ATN	22	17	43	20	13	56	25	35	32	46	48	51	51	04	17	18	-29	-16	-03	48	24	16	18	07	10	16
C. Job Skills																										
QUL	38	30	47	13	10	59	34	37	34	54	55	58	58	44	32	15	-30	-23	21	49	25	41	17	15	09	25
QUN	34	28	50	20	13	62	32	40	34	52	55	56	58	-03	11	22	-22	-10	01	38	19	16	21	04	10	23
WOS	34	31	49	19	07	61	22	44	36	49	52	52	54	11	06	02	-29	-18	-11	34	12	17	06	-03	-01	12

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*Correlations significant at 1% level are indicated by underscoring.

APPENDIX E-8: Correlations Between Sums of First Three Ratings in Phase III and Sums of Last Six Ratings in Phase IV.*

	MALES													FEMALES												
	A. Personal						B. Interpersonal				C. Job Skills			A. Personal						B. Interpersonal				C. Job Skills		
	APP	PHM	ATT	PUN	ATD	IND	WKR	SUP	CLM	ATN	QUL	QUN	WOS	APP	PHM	ATT	PUN	ATD	IND	WKR	SUP	CLM	ATN	QUL	QUN	WOS
A. Personal																										
APP	-63	-73	-65	-45	-76	-47	-73	-73	-65	-68	-28	-65	-30	00	-13	-10	-20	-13	-14	-08	-15	-05	-10	-19	-14	-28
PHM	-12	-68	-10	-37	-45	-03	-46	-36	-37	-15	30	-15	-30	07	-02	09	-13	-08	09	05	01	06	04	-03	05	-08
ATT	-04	-06	-04	34	02	14	-11	02	14	-09	00	03	24	-10	-16	-01	-22	-19	03	-15	-16	-13	-04	11	17	08
PUN	18	29	17	37	25	30	23	25	31	17	06	14	35	-33	-21	-16	-30	-20	-15	-16	-25	-23	-16	-08	-14	-16
ATD	30	40	33	51	36	43	21	36	42	28	25	38	56	-24	13	-05	-21	-13	-01	-06	-12	-15	-10	-03	-05	-05
IND	14	24	20	62	38	30	03	32	42	12	07	48	40	-40	-39	-35	-47	-49	-35	-46	-38	-34	-37	-31	-24	-29
B. Interpersonal																										
WKR	-05	-40	-09	-11	-28	11	-16	-20	-16	-09	14	-27	-10	-13	-13	-03	-24	-21	03	-03	-13	-12	-10	-05	-05	-11
SUP	35	-04	37	42	13	53	-02	22	30	29	59	34	49	-28	-22	-09	-35	-27	-07	-15	-18	-18	-16	-15	-14	-17
CLM	81	47	81	73	63	90	59	73	77	77	76	65	70	-17	-21	-11	-27	-23	-07	-14	-25	-21	-14	-02	-02	-10
ATN	-47	-10	-42	20	00	-37	-32	-15	-06	-47	-62	-01	-20	-27	-16	-01	-24	-24	08	-11	-12	-18	-07	14	15	15
C. Job Skills																										
QUL	05	19	09	56	32	20	05	25	36	03	-08	13	29	-34	-22	-06	-27	-28	00	-22	-17	-24	-09	12	15	14
QUN	05	05	09	50	25	22	-01	21	30	03	00	29	20	-32	-21	-05	-27	-24	-01	-19	-17	-23	-06	12	11	09
WOS	00	-08	03	[illegible]	14	16	-08	12	22	-03	00	19	13	-37	-28	-10	-33	-29	-03	-22	-22	-30	-14	06	07	06

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*Correlations significant at 1% level are indicated by underscoring.

APPENDIX F-1: Comparison of Mean Ratings Received by Counseling and Control Groups in Each of the Training Phases.

PHASE		GROUP	N	APP	PHM	ATT	PUN	ATD	IND	WKR	SUP	CLM	ATN	QUL	QUN	WOS	GNE
I	First Half	Coun.	38	3.5	3.6	3.6	4.1	4.5	3.2	3.7	3.9	3.8	3.4	3.3	3.4	3.3	3.4
		Cont.	33	3.2	3.2	2.9	3.9	4.3	2.6	3.4	3.4	3.2	3.0	3.0	3.0	2.8	3.0
		t*		1.69	2.48	3.57	1.20	0.86	3.15	1.49	2.17	3.32	2.66	1.33	1.28	2.30	2.11
I	Second Half	Coun.	38	3.6	3.7	3.6	4.2	4.5	3.3	3.8	3.9	3.7	3.6	3.5	3.5	3.6	3.4
		Cont.	33	3.2	3.3	3.2	4.1	4.4	2.8	3.3	3.6	3.2	3.1	2.9	3.0	2.9	3.0
		t		1.87	2.17	1.60	0.48	0.48	2.39	2.31	1.92	2.25	2.84	2.33	1.94	3.11	2.18
II	Begin	Coun.	16	10.1	10.6	9.7	11.1	11.3	9.3	10.1	10.8	10.1	10.0	9.5	9.3	9.6	9.7
		Cont.	16	9.1	8.9	8.5	11.2	12.2	7.6	9.8	9.8	9.1	8.6	8.1	8.2	8.2	8.5
		t		1.20	2.40	1.37	0.08	1.30	2.06	0.37	1.18	1.28	1.73	1.33	1.19	1.43	1.29
II	End	Coun.	38	11.4	11.3	10.9	12.6	12.6	10.6	11.4	12.6	10.7	10.9	11.2	11.1	10.9	11.2
		Cont.	33	10.4	10.9	10.4	12.2	13.2	9.7	10.7	11.6	10.8	10.3	9.8	10.0	9.7	9.9
		t		1.69	0.56	0.98	0.81	1.09	1.28	1.19	1.73	0.10	0.88	2.02	1.64	1.77	1.88
III	Begin	Coun.	4	7.5	8.0	9.0	12.0	13.2	8.0	8.0	10.0	11.2	8.2	9.0	9.2	8.5	9.2
		Cont.	5	9.2	9.6	8.6	12.8	14.0	7.4	9.4	10.0	9.4	9.0	8.0	8.4	8.0	8.6
		t		0.93	1.11	0.43	0.47	0.65	0.45	0.85	0.00	2.59	0.95	0.68	0.50	0.33	0.56
III	End	Coun.	13	10.5	11.2	10.5	12.2	13.1	9.9	11.4	11.5	11.4	10.5	10.7	10.8	10.5	10.7
		Cont.	13	10.4	10.6	10.8	12.8	13.0	9.8	10.8	10.8	9.9	10.4	10.8	11.2	11.0	10.7
		t		0.10	0.84	0.34	0.72	0.11	0.14	0.79	0.70	1.49	0.09	0.12	0.40	0.52	0.00
IV		Coun.	9	[illegible]	26.2	26.0	27.0	26.7	25.7	26.8	26.6	26.7	26.0	26.1	26.0	25.6	25.3
		Cont.	4	[illegible]	27.8	27.5	27.2	28.2	27.2	27.8	[illegible]	27.8	27.8	27.5	26.2	26.8	28.0
		t		0.34	0.91	1.00	0.15	1.07	1.10	0.53	1.18	0.70	1.31	1.31	0.15	0.77	1.94

*t's significant at 2% level single underscored, significant at 1% level double underscored.

APPENDIX G-1: Job Information Schedule Regarding Students on Community Placement.

Interviewer ______________________ Date ____________________

I. General Information

A. 1. Name __________ 2. TRC# ____ 3. Sex ___ 4. Job Title _____

B. Living Situation
(check one)
1. Rooming ______
2. Boarding ______
3. Family ______
4. Sleep-in ______
5. Other ______

C. Living Location
1. Rural ______
2. Suburban ______
3. Urban ______

D. Travel

1. Does the worker travel to work? a. yes ____ b. no ____

2. If yes, state how: ______________________________

3. Does the worker need assistance? a. yes ____ b. no ____

4. Distance ________________ (one way) 5. Time ______________ (one way)

E. Salary

1. $ ______ per ______

2. This salary is:
   - a. Above minimum going rate ____
   - b. Minimum going rate ____
   - c. Below minimum going rate ____

3. Does the worker receive the full amount?
   - a. yes ____
   - b. no ____

4. In addition to the salary the worker receives: (check all which pertain)
   - a. Nothing ___
   - b. Room ___
   - c. Board ___
   - d. S.S. ___
   - e. Other ___
   - f. Specify ___
   - __________
   - __________

5. Deductions are taken from the salary for: (check all which pertain)
   - a. None are taken ____
   - b. Room ____
   - c. Board ____
   - d. Income Tax ____
   - e. S.S. ____
   - f. Unem.Comp. ____
   - g. Hosp. ____
   - h. Other ____

6. Comments: ____

____

II. Contacts

A. The present schedule of Field Service contacts with this case is:

1. weekly ____ 2. monthly ____ 3. quarterly ____ 4. semi-annually ____ 5. other ____ specify ______________

B. Since ___________, there have been ____ contacts of all
(date of last report)
types with this case.

C. Comments: ____

____

III. Supervision

A. Quantity estimate percent of working time under direct supervision:

(CHECK ONE) 1 ________ 10% or less   2 ________ 25%   3 ________ 50%

4 ________ 75%   5 ________ 90% or more

B. Type (check one for each rater):

Immediate Supervisor	Worker (Student)	Field Worker	
1a______	2a______	3a____	a- supervisor primarily utilizes praise and encouragement, with little, if any, negative criticism;
1b______	2b______	3b____	b- supervisor primarily utilizes negative criticism, with little, if any, praise and encouragement;
1c______	2c______	3c____	c- supervisor generally avoids commenting to workers about their performance, neither praise nor criticism is frequent, direction is minimal.

APPENDIX [illegible]-1: (Continued)

IV. Physical Demands

A. Type of work (check one)

1. _____ heavy (lifting and moving heavy objects)
2. _____ light (essentially few demands for heavy physical work)
3. _____ fine (stress on fine coordination, precision assembly work)

B. Variability of work (check all which pertain)

1. _____ routine (highly repetitive work, same task or group of tasks to be performed consistently)
2. _____ varied (many different tasks, sequence not routinized or scheduled)
3. _____ even (no great variance in the work load throughout the working period)
4. _____ peak (periods of greater demands and increased pressure for production occur at intervals during the work period)

C. Comments: ____

____

V. Conditions of Work

A. Quantity estimate of the amount of time employee works alone:

(CHECK ONE)
1 ________ 10% or less
2 ________ 25%
3 ________ 50%
4 ________ 75%
5 ________ 90% or more

B. Quantity estimate of the amount of working time spent in outdoor work:

(CHECK ONE)
1 ________ 10% or less
2 ________ 25%
3 ________ 50%
4 ________ 75%
5 ________ 90% or more

APPENDIX [illegible]: (Continued)

C. Quantity estimate of the amount of working time spent with persons of the same sex:

(CHECK ONE)

1 ________ 10% or less

2 ________ 25%

3 ________ 50%

4 ________ 75%

5 ________ 90% or more

VI. Personal Appearance and Cleanliness (CHECK ONE)

1 ________ of no importance not a consideration

2 ________ desired but not related to job success

3 ________ important but minor infractions can be tolerated

4 ________ vital to job success

VII. Interpersonal Demands (CHECK ONE)

1 ________ of no importance not a consideration

2 ________ desired but not related to job success

3 ________ important but minor infractions can be tolerated

4 ________ vital to job success

VIII. Comments: (any additional information which the interviewer feels may be related to any aspect of the worker's job adjustment)

____

____

____

____

____

____

____

IX. Evaluation of Performance - The Vocation Performance and Adjustment Rating Scale is presented to the supervisor for evaluation of the worker.

APPENDIX G-2: Characteristics of Students Released to Community

	Returned N	Extended Leave N	Discharged N
Sex			
Male	2	42	42
Female	2	21	20
Employment			
Not reported	0	0	3
Unemployed	3	16	13
In school	0	6	3
In training	0	1	1
Sheltered workshop	0	2	0
Part time	0	1	2
Full time	1	37	42
Maintenance Received			
Not reported	3	24	23
Room	0	0	0
Board	0	6	4
Room and board	1	11	9
None	0	22	26
Living Arrangement			
Not reported	3	13	11
Shelter	1	37	43
Independent	0	12	0
Travel to Work			
Not reported	3	22	21
Yes	1	28	26
No	0	13	15
Need Assistance in Travel			
Not reported	3	22	22
Yes	1	5	3
No	0	36	37
Earnings*	$/wk.	$/wk.	$/wk.
Mean	35.00	34.27	38.32
Mode	35.00	35.00	40.00
Minimum	35.00	3.00	10.00
Maximum	35.00	58.00	60.00

*Reported only for subjects employed.

PUBLICATIONS AND PRESENTATIONS

The institues, papers and articles listed were prepared by staff members of Project 425 during the course of its four-year duration.

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Annual Project Institute. The team concept in community planning. Co-sponsored with the Rutgers Graduate School of Social Work (VRA) and the New Jersey Rehabilitation Commission. Bordentown, N.J., June, 1961.

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